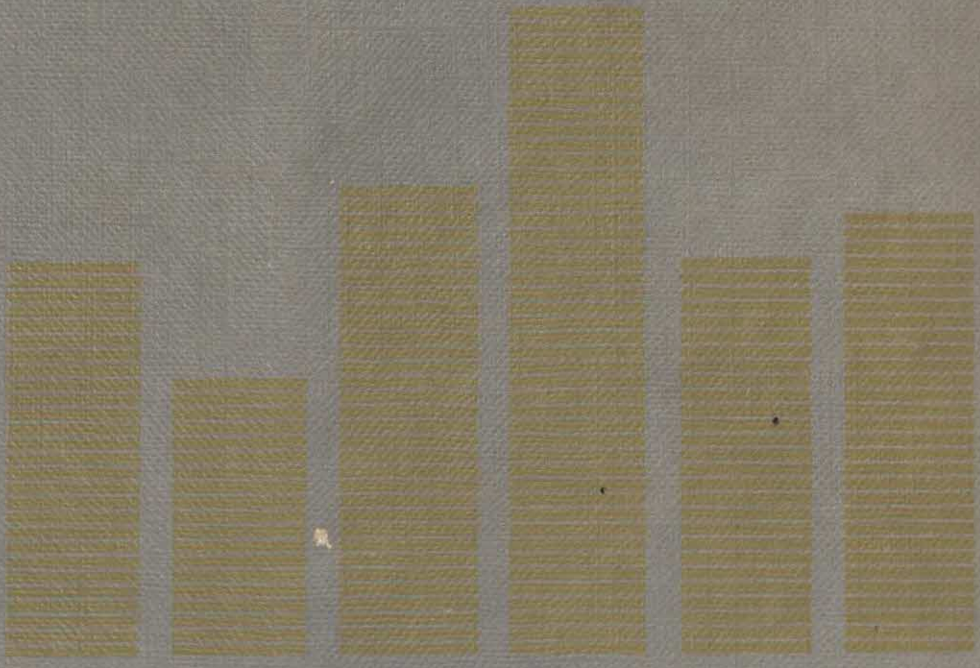
Principles
and
Practice
of
Education

J. S. Farrant



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PRINCIPLES AND PRACTICE OF EDUCATION

FOR USE IN AFRICAN TRAINING COLLEGES

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PREFACE

THROUGHOUT Africa, education is looked upon as one of the vital means of claiming the freedom that so many of its nations have struggled for and now attained. But no superficial accumulation of knowledge will suffice to remove the suspicions and fears that divide men or the poverty and ignorance that hinder progress. Only a real understanding of what education is and a determined effort by teachers to provide their pupils with real education will succeed in shaking off the shackles that prevent true happiness from being enjoyed.

In Teacher Training Colleges throughout Africa, Education is a compulsory subject. In some territories the subject is made more specific and called Principles and Practice of Education. This book is written as a textbook to help students training to be teachers in primary schools to make a thorough study of the subject and understand the principles on which all their future teaching will be based.

I have tried to ensure that the knowledge and understanding of education will spring from real experience by making a section in each chapter which provides practical and experimental work and thought-provoking topics for discussion. These are not supplementary to the course. They are an integral part of it. Only as students use these activities will the experience and understanding grow which will help them to see the relationship between principles and practice. The book is essentially practical so that students will learn by doing.

I am indebted to the colleagues with whom I have worked for many years at Gindiri Teacher Training College and to those many tutors from other colleges in Nigeria who, at conferences or courses, have helped me to forge the ideas presented in this book. But I would also like to express my appreciation to the hundreds of students in whose education I have been able to share and from whom I have learned so much of the needs and hopes of Africa—needs and hopes which I am convinced can only be met by God and the pure knowledge and power that He gives.

I should like to acknowledge my thanks to the publishers of the books and magazines who have granted permission for extracts from their publications to be used in the text of this book and to Myra Martin who so kindly typed the manuscript.

J.S.F.
Sudan United Mission
Gindiri, 1964.

INTRODUCTION

A Word to Tutors about . . .

THE PURPOSE OF TEACHER TRAINING

TEACHER Training is essentially a period of orientation of thought and outlook on education. Too often it has been regarded as just a period for learning the techniques of teaching. But if that is all it is, then its products are no better than performing hyenas, able to do all the tricks without a reason save that of trying to please their masters.

If, by orientation, students can be redirected from the many cross-purposes that confuse modern life and come to see the sign-posts that lead to the more distant but more important goals of life, then the work of training will have been worthwhile. The need for methods and the approach to teaching will be felt by the students and they will see them in their proper context as a means to achieving their ends instead of as an end in themselves.

For this reason the tutor should get away from the idea that he is training students to teach in a particular way, or that there is only one right way. It is more important that students should understand what they are doing than that they should be able to parrot the right answer, though the chances are that if a student approaches the problem in a thoughtful way, his answer will be right.

At college, students must be trained to form habits which will make them capable, not only in teaching knowledge, but in their ability to shoulder responsibility, show initiative, assist those in need and live lives which are a good example to others. Practice makes perfect and only as students are given the opportunity to do these things and receive constant encouragement in doing them while at college, will they develop the ability and habits which they require.

THE METHOD OF TEACHER TRAINING

Once tutors really appreciate that their task is to produce thinking teachers, the battle is half-won. There are far too many teachers in primary schools unashamedly teaching to their children just what they learned in college. They dictate the notes they were given, seemingly unaware that children may be different from students or that local studies made in the neighbourhood of the college cease to be local studies for children in a school scores of miles away.

To overcome this, tutors must themselves practise what they preach, using the methods they advocate, making their students think, experiment, criticise, evaluate and act in accordance with their beliefs. Tutors can only do this if they provide food for thought which is not already 'tinned'. They must encourage experiment, direct students to sources of information that require critical appraisal, selection and evaluation and they must make their students put their conclusions to the test in the environment of a real school.

The syllabus for Principles and Practice of Education has this practical approach in mind. It stresses that practice is only meaningful if it is based on sound principles, and principles are only useful when they are put into practice. And so examinations require students to show that they understand the main principles of education by explaining how they have used, or plan to use, these principles in practice.

USING THIS BOOK

In section A of each chapter in this book, I have tried to provide students with the basic principles of education, the bare bones, as it were. Thus students should be urged to read Section A before they tackle any practical work, so that they are made aware of the size of the task that faces them.

In Section B, students are provided with a variety of material intended to help them think more deeply about the principles outlined in Section A. This is done in ways which I believe they will find interesting and which are most likely to result in real learning. They are methods which will be of value not only while the students are in college but also after they leave and take up appointments as teachers in schools.

The following list covers the main types of practical work offered to students:

Answering questions.
Following instructions.
Observing closely what they see.

Tackling tasks alone and in teams.
Performing experiments.
Proving and testing ideas in practice.
Debating and discussing problems.
Comparing assertions, theories and beliefs.
Criticizing statements.
Reading more widely.
Making notes of what they do.
Summarizing conclusions.

It is not suggested that all the practical work in section B should be attempted. Time will not allow it. But as much as possible should be tackled. This can be done by selecting some projects and discussions to be done in class with all the students sharing the task, and some for group work when each group may deal with the same or different matters. Individual students may be given specific tasks in section B to carry out by themselves either in class time or in out-of-college time. The ground covered can be enormously increased if the classroom is used, not as a place of teaching, but as a place in which experiences are shared and conclusions drawn from work which has occupied students inside and out of college.

The tutor should avoid feeling that his task is that of a teacher in all this, but rather he should think of himself as a director of studies. This will involve him sometimes in initiating a task, sometimes in stimulating thought, sometimes in standing back as an observer. It will always mean assessing the value of the work done by students whether in oral, written or practical form.

It is suggested that as each chapter is finished, students should read again Section A. This will provide them with the framework on which they can hang all the knowledge they have acquired in tackling Section B.

It is not necessary to start at the beginning of the book and work through it from cover to cover. It has been arranged in a logical way so that students can see the problem of teaching as a whole. But this may not be the most convenient order in which to study the material. Practical requirements may demand some knowledge of the classroom before the psychology of learning is embarked upon; or the use of visual aids before an understanding of the development of personality. I suggest you use all the detailed advice given in this book as a guide only. Do not allow it to dictate your own teaching or such methods as you have proved successful with your own students.

This is not a 'do-it-for-you-book'. Rather it is a 'do-it-yourself book' which tries, as it teaches, to introduce the student to methods of study which will be truly useful in later years. It has tried to avoid the extremes of laying down rigid, inflexible rules of method which leave no opening for variations in the teacher's ability or the needs of pupils on the one hand, or on the other, of being so idealistic and removed from the chalk dust of the classroom that only the born teacher or genius could benefit from it.

Because so few training colleges have satisfactory libraries, a few extracts from educational books and magazines have been reproduced in this book partly in order to provide material for discussion but also in the hope that they will encourage tutors and students to make greater use of reference books and journals for their own study. But tutors should seek to build up the college library with suitable books: a short list of books for more detailed study is given at the end of each part of this book. In addition, tutors are recommended to make use of the educational periodicals which serve Africa in general and their own territories in particular.

TUTOR CO-OPERATION

Some students live a two-faced existence at college, trying to satisfy the different demands of respective tutors. This is not as it should be and only harm can be done by tutors who go their own way, giving the impression that theirs is the only way of doing the job and expecting all their students to follow obediently.

Tutors should get together and discuss the problems of correlating not only their courses but also the methods they want the students to adopt for routine matters. For example, it is ridiculous for the tutors in each subject to demand lesson notes to be written in accordance with their own pet ideas.

The tutor in Principles of Education is an appropriate person to co-ordinate the work of the specialist tutors. In certain cases, he may require the authority of the Principal to give rulings, but his main object will not be to get unity by uniformity of practice but rather by unity of purpose.

Through lack of space, it has been impossible to take up the problems concerned with the methods of teaching specific subjects in this book, though examples dealing with subject method have been used throughout. In any case, the Principles Tutor is not the best person to teach subject method. This should be the responsibility of the various subject tutors. But it is very important for the tutor in Principles to know the methods being taught by the specialist tutors so that he can get the greatest co-operation amongst them. Only in this way will students gain confidence in their approach to practical teaching and avoid the need to become hypocrites and flatterers.

PRACTICE TEACHING

The aim of the training college is to produce good teachers. Unlike secondary schools in which academic competence may satisfy, this aim demands not only knowledge but the experience of how to put theory into practice. Training therefore requires two types of practice teaching experience.

The first is observational; in it students may watch experienced teachers at work, or their own colleagues trying out, perhaps for the first time, some method they have discussed. The second is experimental and is intended to provide experience.

The first type of practice teaching experience should be brief; it is best served by short visits to a real school near the college where the students can see real teachers in action with real children. Reality of experience is an important principle of teacher training. The opportunity for such should be found in the Demonstration School of which more will be said in a moment.

The second type of practice teaching experience requires a more prolonged stay in the school so that the student can put into practice the methods he has tested and evaluated as worthwhile and also so that he can gain experience in dealing with teaching, not as individual lessons, but as a continuous living relationship between teacher and pupils. Such experience should be obtained in a school as similar as possible to that in which the student will later teach. For this reason, this practice should not be in the Demonstration School and should be for a continuous period of not less than two weeks. This allows him to see that real teaching is not a series of lessons taught by a teacher but a growth of understanding developed in the children. Lessons cannot be taught; they can only be learned.

Practice teaching is of no use if the student approaches it uncritically. The tutor must be the guide in this, making the student ask questions of himself if he is uncritical and suggesting steps he might take when he fails to make progress. To be able to do this, he will have to see his students while they are teaching and stay with them long enough to see them overcome their difficulties. Teaching practice should be one of the busiest times, not only for students, but for tutors also.

All practice teaching, so far as students are concerned, is in a sense experimental and as such it requires thorough preparation beforehand if it is not to be a waste of time. The students need to be prepared not only so far as knowledge and teaching aids are concerned, but psychologically so that they are ready to stand back and look at themselves objectively, evaluate honestly their methods and results and learn from the experience.

One of the best helps to objective criticism, whether it be of oneself or another, is the questionnaire. Each student should enter teaching practice armed with at least one questionnaire (list of questions). In it there should be places where he can give examples, desirable and otherwise, of observations made in lessons he has watched concerning the teacher's person, manner, pupil relationships, his lesson presentation and its reception and such matters concerning the school as are relevant to the evaluation of the lesson.

All practice teaching should be followed up with discussion. This can be private between the tutor and the individual student where particular points in a lesson are discussed; or it may be general as when all the students assemble to evaluate the aims, methods and results of the teaching, and general conclusions or principles are thrashed out. The knowledge of Principles of Education must be the result of practical experience.

THE DEMONSTRATION SCHOOL

Opinion in some countries has moved away from the idea of a special school with a close relationship with a training college. But as long as there are many schools below desirable standards and as long as sparse distribution of rural schools makes contact with schools a major problem for training colleges situated away from towns, it is good to have Demonstration Schools attached to the training colleges.

Some educationalists consider that these Demonstration Schools should be specially favoured as regards buildings, staff and equipment. But if this happens, their effectiveness is decreased as training schools for students. If they are lavishly equipped, students will learn to depend on the equipment provided and give up when they descend to the frugal reality of ordinary schools. The Demonstration School must provide a teaching environment that is real and similar to that the students will find in the schools in which they will later teach.

The only concession that should be made to Demonstration Schools is in the matter of staff. The teachers should be the best that are available. Only in this way will students have a chance to see good teachers in action. The training college tutor who takes over a school class to demonstrate can never equal a good regular teacher for the simple reason that he is not the children's regular teacher. Observation of good teachers in action should be an important part of every student's training.

Any attempt to use equipment not found in the school is good so long as it is something which the student might reasonably procure for himself when he becomes a teacher. As a student, however, he will have to obtain this from the college. Nevertheless, it is good to emphasize that if good teachers have been placed in the Demonstration School they will provide fine examples of what can be done with initiative and a ready eye for adaptation.

The Demonstration School can only fulfil its proper function if tutors treat it rightly. There should never be bands of unsupervised students in the school, some 'having a look at the teaching' or some perhaps even 'having a shot at teaching'. Every visit to the Demonstration School should be with the full knowledge of the Headmaster and should be planned with him ahead. Each student should be prepared for every visit by being given a specific task to fulfil whether in practice teaching or observation so that every moment spent there is purposeful. Every visit should be followed up in college with discussion so that the value of the visit can be assessed and attention be drawn to important points which arose during the visit.

THE FOLLOW-UP OF STUDENTS

The period of a student's training is all too short and most tutors feel they could do much more if only they could have some continuing contact with their students when they leave. But to do so is a major problem.

There are three main difficulties which the student meets after he leaves college. These are:

Lack of facilities for keeping up to date.
Lack of guidance with his particular school problems.
Lack of advice for furthering his general education and career.

The college can help in the first and last case without too much difficulty, but the problem of giving local help presents tremendous problems.

By running short refresher courses, the college can help teachers with any aspect of teaching that is in special need of help. Most teachers welcome such courses and are usually prepared to pay their own expenses. This is as it should be. The main problem is usually one of finding a time suitable both to the college and the teachers. Some colleges have run successful courses during a holiday period. This is good, but it denies any opportunity of using schools for demonstration purposes. Some colleges have met this objection by running a small refresher course during the first week of a new term. In this way, schools are available and the college itself is in running order. The problem of accommodation is met by delaying the return of a proportion of the students until the refresher course has ended.

Private study and advice on careers are notably lacking for students in Africa. Many waste a great deal of money and time tackling correspondence courses which are quite unsuited to their ability and needs. If someone on the staff of each training college were to take upon himself this responsibility it would be of inestimable help to students. After leaving, students could still receive his help through a circular letter containing up-to-date information on these matters, or could write to him personally on individual problems.

The problem of local difficulties found by teachers is one which can really only be solved by the visits of tutors to the schools where their ex-students are teaching. This is impossible as a regular activity for tutors because of the time and expense involved. But if the college serves a limited geographical area, a solution can be found by arranging student teaching practice in those schools where teachers are in need of help. This will allow tutors to come to those schools in the normal course of their work, but it will also let them give time and help to former students.

Much of the good work done during college days is being undone because of lack of follow-up. This state of affairs can only change when tutors in the colleges take the initiative and do something about it.

For Further Reading

H. J. BYRNE.	*Primary Teacher Training.*	Oxford University Press.
—	*Teacher Education* (A quarterly journal)	Oxford University Press.
—	*West African Journal of Education.*	Cambridge University Press.
A. HUNT COOKE.	*Teaching Practice and Tests.*	Longmans.

Also those teachers' magazines that are published in your own country.

A Word to Students about . . .

HEALTH

Each year a number of students become ill at college because they fail to take proper care of themselves. Many more fail to do their best for exactly the same reason. Proper care does not mean pampering yourself nor does it involve just keeping physically fit. It means keeping mentally and morally fit as well. Too often students concentrate on one of these only and in consequence the whole suffers.

There are those who become captain of football, captain of athletics and captain of every sport that is going. But what is the use of it all if they fail to qualify as teachers? Others become unbalanced creatures with furiously active minds perched upon weedy, sickly bodies. They are most likely to be pushed over by the children on their first day in school. Others busy themselves with good works to such an extent that their studies suffer and they end up as failures. Such teachers are hardly likely to be competent in their job.

Students must learn at college to live a balanced, responsible life and they can only learn this by doing it. Obey the laws of health by attention to personal hygiene, proper diet and eating habits, and observe a proper balance in your activities. Take a good look at fig 1 which shows that a balanced day is represented by 8 hours rest. 8 hours work and 8 hours recreational activity.

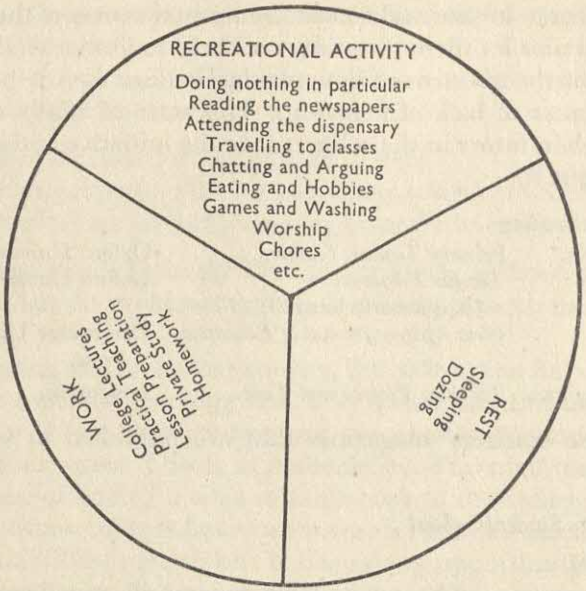

Fig 1. Balanced Activites for the Healthy Student.

WORK

Many students fail to make the best use of the time they spend on work because they do not know the secrets of successful work. The most important aspect of a student's work is his study. Much time and effort are wasted through lack of concentration. All those who have become famous either as scientists, sportsmen or statesmen have developed an unusual capacity for concentrating on the job in hand. You must do this also if you are to succeed. You can help yourself by choosing for optional subjects those you really enjoy and by developing a serious determination to do well.

In class you should make fullest use of your tutors' experience by attending carefully to what is said and taking every opportunity to question, challenge, discuss and prove what is taught. This can best be done if you keep ahead of what is going on in class. By reading ahead, you will find your tutors' teaching understandable and see its relation to the whole course, instead of something strange and enigmatic.

Some students waste valuable energy in worrying. They would do better to stop worrying and work. Procrastination is not only the thief of time, it is the thief of physical and mental energy.

Do not deceive yourself by thinking you are working when you are just reading a book, even if it is a textbook. Your mind will doubtless soon be wandering and you will be back right where you started in no time. The best thing to do when reading for study is to have a notebook at hand and note down in it points you consider important or worth remembering.

While you work, work hard. It has been proved that if you concentrate and work hard for short periods, you remember better what you have learned than if you work for weeks nibbling at your work. The activity of a student at work should resemble the energy and purpose of the ant; his leisure, the relaxed soaring of the eagle.

The notebook can be a most valuable aid to the wise student. You will have one notebook for each factual subject for private use. In your notebook you should use one page only for recording the main facts you want to learn. On each opposite page, note stories, illustrations and examples which will give body to the basic notes and help to make them forceful and persuasive. Your basic notes may be built up from your tutors' lessons and your private study with textbooks. The illustrations you record should be collected if possible from personal experience. But if you take them from books, see that you choose only those that are really striking, unusual, interesting or amusing, for these are the kinds you will find most memorable.

A rough notebook is useful for collecting odds and ends of information from your reading observation or listening. This raw material can be transferred to your subject notebooks at leisure so that they have a polished form and when the rough notebook is full, you can throw it away.

Notes are more easily remembered if you arrange them carefully, grouping together those on the same point and leaving plenty of space between different ones. A notebook kept in this way will become a real treasure store because it possesses all the essential information you have learned. But it will reflect your personality in the examples and illustrations you have chosen and that is what learning should do.

READING

Reading is the method by which students do most of their study but too many students are held back by a painfully slow reading speed. Some read no more quickly to themselves than they do aloud. If students are to benefit from books they must be capable of reading quickly when they want to.

Much has been done in recent years to improve reading speed and some people whose former reading speed was less than 200 words per minute have shot up to 500 or more with no decrease in understanding. Naturally one's reading speed is affected by the kind of book one is reading. A serious textbook is quite a different thing from a novel. But what you must learn as a student is to be able to read rapidly when you want to as well as to be able to read slowly and thoughtfully.

The main causes of slow reading are failures in technique. All skills depend on well co-ordinated movements and avoiding all actions which are wasteful either in time or effort. Reading is as much a skill as blacksmithing. If we were to try the blacksmith's work we would take much longer to produce the tools he makes and it is very likely that the quality of our work would be very inferior to his. The reason for this is that we would have possibly hammered unnecessarily hard and long because we failed to judge the correct temperature at which the metal would respond most easily. The results of our work would be poorer than his because we had not developed the necessary skill to hit the metal just where it needed it.

So it is with speed reading and indeed with all reading. The eyes fall on the printed page in a series of blows taking in the meaning where they fall. They do not move smoothly across the page, as you might think, but in kangaroo hops. The more words you can hit with each blow and the bigger you can make your hops, the faster will be your reading. Speed reading therefore depends on developing skill which cuts out unnecessary movements and makes the eyes able to take in at a glance an increasingly large number of words.

✓ The following are some of the main faults of the slow reader and the measures by which they can be overcome.

FAULTS	CORRECTIVE TREATMENT
1 Forming the words with the lips and tongue although done silently, is as great a hindrance as reading aloud or muttering.	1 Read silently and chew chewing-gum or a chewing stick.
2 Going back to a word or phrase already read greatly slows down reading speed. It results from poor co-ordination or lack of understanding of what is read.	2 Train with flash cards. Keep to reading material within your capacity and consciously forbid yourself to go back. You can trace your fingers along the line continuously as fast as your eyes can keep up with it. At all costs keep going forward.
3 Taking in only one word at a time or if the word is long, seeing only part of it, slows reading. Fast reading requires whole phrases and more to be taken in at a glance.	3 Use flash cards with increasing numbers of words as skill develops.
4 Unwillingness to skip pages, paragraphs or sometimes even a line or two prevents the slow reader from getting quickly to the point he is searching for or from getting a general impression of what he reads.	4 Look at the Table of Contents of a book so as to get an idea of what it is all about. Practise seeing how many lines or pages you can cover in a minute so as to be able to give an outline of what you have read. Aim at getting faster and faster.

Tests have shown that anyone can double his reading speed and that this gain in speed is accompanied by an improvement in comprehension of about 25 per cent. There is almost no limit for the eager speed reader. As a student you should aim at being able to read at speed when you want to so that you can adjust your pace to the purpose of your reading. When you want to get from one place to another in a hurry you fly in an aeroplane but when you want to know the ground you trek.

RECREATION

Recreation is usually thought of in a negative way as 'not working'. In a sense this is true, but it is better if you think of it as complementary to work. Work uses up energy. Recreation re-creates it. Thus recreation may sometimes mean rest from physical or mental activity so as to give time for the body to restore the energy which will be required for the next spell of work. In this sense, recreation is a most important need for the student, and he is a foolish fellow who ignores the need of his body and mind for rest.

Recreation may also mean a change of activity. The body is a whole and when any part of it is not used, it soon becomes stale and weak and the whole body suffers. For this reason, it is good to give exercise to the body after spells of hard mental activity. Or if the mind has been active in solving problems, rest it by letting it be carried away by refreshing music, light reading or friendly conversation.

You must steer a straight course between working too long at one thing and having too many alternative activities. Some students fail because they do not work hard enough and pursue too many recreational activities.

It is worth considering carefully what recreational activities you will practise while in college. Not all activities are equally good and some are positively harmful. It is as easy to poison the mind as the body. Just as you choose with care what you eat and drink, so you should choose carefully what you read, look at and listen to.

Recreation should also be provided for your moral and spiritual life. Some students, brought up by religious parents, put aside religion until they finish their training. But neglect can lead only to weakening and there is danger that after training it will be too late. You should practise your faith while in training, constantly tempering it for your future work as a teacher. If you are not already doing so, you should, at college, develop moral habits and pursue the social activities which you will want to continue after training. Remember 'You reap what you sow'.

EXAMINATIONS

These usually loom very large in the minds of students, particularly as the year draws to its close or as the end of the course comes in sight. The tingle you feel just before an examination is good because it shows you are in top gear. It is the same process that keys you up just before a big football match. But a feeling of dread which hangs about for weeks before is definitely bad.

There are two things which cause people to fail in examinations. The first is lack of knowledge and the second is inability to write about what they know. Lack of knowledge may result sometimes just from laziness, but more often from possessing the wrong kind of knowledge. Examinations are not a test of pure memory but that is how many students treat them. They learn up their notes and the books they have studied so that they can repeat long sections by heart. In fact they become so obsessed with memorizing that they give little attention to understanding. When the examination comes along, they see a question that reminds them of something they know by heart, and out it pours on to the examination script. They have not sufficient understanding of what they have learned, to know whether what they write is relevant or not.

In this book, I have tried to make sure that you will do well in your examination in Principles and Practice of Education. The way I have tried to do so is to make sure that you understand what you are learning. If you read only Section A of each chapter you will be in the trouble I have just described. But by doing the practical work in Section B, I can assure you you will gain understanding. You will then have real knowledge and the ability to do well, and you will not be like those who depend on memorization. With them, after the urge of the examination has passed, they find their memory wilts and their practice falters and as teachers they become useless because their knowledge is built on sand.

There is no use in knowing and understanding all the material for the examination if you cannot write well about it. Most examinations at present require essay answers, so in addition you must be able to write good essays. The only solution to this problem is to learn how to write good essays. Once learned this will help you in all the subjects in which essay answers play a part.

The secret of good essays is to make them *different* from other people's by using uncommon illustrations, and *interesting* by using vivid examples of personal experience. Use short, simple sentences, so that punctuation does not present a problem, and use straightforward words which you can spell correctly. Avoid fancy, flowery language which you do not really understand. Make your opening and closing paragraphs arresting and keep all your other paragraphs short and to the point. This is the secret of the good examination essay. Few students appear to know it; fewer still practise it!

Preparation for examinations should not be a prolonged agony of revision. If you have worked conscientiously you will have in your notebook the main facts of the course, well illustrated with examples from personal experience, quotations from books and other memorable supporting material. Reading these notes will bring to life again all your earlier studies and you will be able to handle the material well in an answer because all your examples are vivid and interesting.

The most common mistakes that students make in exams are to stay up too late the night before, to fail to read the instructions on the question paper, and so to answer questions of their own making instead of what is asked. The most common weaknesses in essay answers come from students who write dreary prose often learned by heart from the textbook; who paragraph badly, spell badly and write illegibly. You have been warned! Learn to write good essays!

Part 1

THE CHILD

for children who, for some reason, vary considerably from normal. But it is only when we know what to expect of the normal child that this becomes a possibility. Thus the study of *normal* development is fundamental to child study and is the aspect you should always concentrate on.

METHODS OF CHILD STUDY

Experience has shown that the best way of collecting information about children, so that valid comparisons between different children can be made, is the *questionnaire*. But the kind of questionnaire you need and the way you use it depends very much on the purpose of your study.

If you want to find out what the average child of a certain age is like you will have to set questions to a very large number of children of this age. The questions will have to cover the various lines along which children progress, such as physical, mental, emotional and social development. This task is too big for the teacher. It would involve him in years of research if he were to do it thoroughly enough to get valid results.

Research of this kind has been done by child psychologists in Europe and America, and so-called '*norms*' are available for children of every age. But in Africa, such research is still inadequate for accurate conclusions to be drawn. However, by using smaller samples, some idea of the typical African child at different ages can be gained, but you will have to do it yourself.

If your purpose in child study is *diagnostic*—that is, to find out what is wrong with an individual child—the nature of your questionnaire will be different. Your technique must change from that of the public opinion poll to that of the doctor in his clinic. There he asks questions and applies tests which aim at showing in what respects and to what extent the patient is different from a normal healthy person. So with diagnostic studies of children, you must find in what ways and how far the child differs from other normal children of his own age. Without tested standards for comparison, your diagnosis may not be very accurate and your suggested treatment may not be very effective but they will be better than nothing. Remember that doctors cured people before medicine ever became a science.

In addition to questionnaires, child study makes use of various kinds of tests. These are:

(a) *Intelligence tests*
These try to relate the mental ability of an individual child to the 'norm' for his age.

(b) *Attainment tests*
These examine what the child has achieved in learning. They are used for assessing progress in school subjects.

(c) *Diagnostic tests*
These try to find the specific weaknesses in a child's performance in school subjects.

(d) *Personality tests*
These try to assess the emotional and social maturity of the child.

In Africa it is still impossible to get standardized tests of these kinds. But the important thing for us to try to do is to be aware of differences in intelligence, attainment and personality and take steps to develop any special abilities and cure any weaknesses. What we need to do is to keep our eyes, ears and mind open so that we do not miss opportunities to give help where and when it is needed.

THE NORMAL CHILD

We find it convenient to talk of 'the *average man*' as one who represents all ordinary men. In child study, the term '*the normal child*' is used in the same way, although in fact there is no such person. He is simply an imaginary child in whom all the characteristics usually found in children of his age have been collected.

However, you will certainly find a great many children whose measurements lie very close to the average figure. Indeed nearly 90 per cent of all the children of a particular age will fall quite near the average for that age. Only very few children in a representative sample lie very much above or below the average.

When we graph the distribution of height, weight, intelligence or some such attribute amongst children of a particular age we get a bell-shaped curve which statisticians call a *normal distribution curve*. A vertical belt up the middle of this curve represents the *range of normality* and it is within this range that the great majority of children are found. 'Norms' or average figures for children of a certain age come from the middle of this belt. Graphs of this kind can be drawn for a wide range of characteristics, physical, intellectual and emotional.

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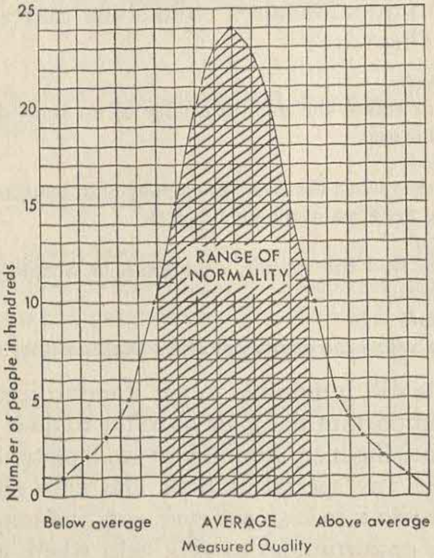


Fig 2. A normal distribution curve

Although I have been stressing the importance of 'norms' and averages, we must not ignore the variations that occur. Indeed your knowledge of 'norms' should be learned primarily so that you can recognize the variations you will find in your children. An understanding of how these differences come about will enable you to give help to the unusual child in the problems that he faces because of his unusual qualities and it will also help you to allow the normal child to progress at his best speed.

HEREDITY AND ENVIRONMENT

Each of us grows up under the two important influences of heredity and environment. Heredity gives to us our inborn and often latent talents, our physical and mental mechanism with all its strength and weakness. Environment, like the blacksmith's forge, tempers and alters our natural characteristics according to the treatment given.

Each newborn child is a unique creation, different in detail from any other. Nevertheless, heredity makes each of us similar to our fellow men and most like our relatives. Environment moulds and alters us, sometimes making us more like each other and sometimes exaggerating our differences. The interplay of heredity and environment is responsible for nearly all the close likenesses and wide differences to be found amongst human beings.

Psychologists have always been keen to discover just what proportion of our make-up is due to heredity and what to environment. But they have never been able to decide. Probably the truth is that the ratio is different in each one of us. In some, heredity dominates the life and behaviour of the individual; in others it is environment. The stronger and more dominant the forces of either heredity or environment are, the greater are their effects on the individual.

There is a further complicating factor in our development and this is that individual choice plays a part in every conscious response to our environment. If we were influenced only by heredity and environment our behaviour would be in accordance with physical laws and our reactions would be predictable. But the fact is that conscious human behaviour and response are never wholly predictable. For example, if a complete stranger strikes you for no apparent reason, you have a choice of action, either to hit him back or hold back your natural anger. Your temperament and the kind of upbringing you have had will make you likely to respond in a particular way. But there always remains an element of unpredictability about how you will react because of your ability to choose. It is this ability that prevents us from becoming a race of robots completely subservient to the caprice of heredity and environment.

THE INNATE TENDENCIES OF MAN

In both man and animals there are *physiological needs* which must be met if life is to be preserved. Food, drink, sleep and avoidance of injury to the body assure the living creature of a fairly good chance of continuing life, and mating makes possible the survival of the species. In man there are emotional needs like the need for security and the need for love and affection upon which normal emotional development depends.

The forces which cause men and animals to meet their needs and therefore go in search of food, drink, mates, security and so on are termed *drives* and are represented in such feelings as hunger, thirst, tiredness, sex urge and anxiety.

When man responds to the urge from within which these drives provide, he may go about it in various ways. Why he chooses one way rather than another we reckon must be an act of will. He has a reason, a motive, for his behaviour. Therefore the whole study of why people behave as they do is termed *motivation*, because it tries to get to the root of cause and effect in people's behaviour. For the teacher it is of particular importance because it gives him knowledge of the best ways of encouraging learning in his children.

The way animals react to their needs and inner drives follows a fairly fixed pattern. For example, birds build their nests and migrate without teaching; spiders spin their webs and some female types even kill the male after mating: nothing can change this behaviour. One kind of fish found in the waters of the Pacific off California allows itself to be cast up high and dry on the beach for the period of a whole tide in order to lay its eggs. These fixed, unlearned patterns of behaviour we call *instincts*. But in man there is no type of behaviour that is so fixed and unchangeable as that of animals and so the term instinct is avoided.

Instead, terms like *innate tendencies* or inner propensities have been used to describe those varied patterns of behaviour which man reveals and which help him and his species to survive. Psychologists are not agreed as to whether these tendencies are actually inherited or whether they are patterned by our social environment throughout childhood. Suffice it to say that the tendencies are quite marked and some are of particular importance to the teacher.

It would be wrong to think of man's behaviour as the product of these tendencies. Rather, these tendencies are the ways in which his life is expressed. Man has a will to live and this will to live expresses itself in the innate tendencies we have mentioned. The will to live expresses itself in two main tendencies from which stem all the others. These are the urge to *give* and the urge to *get*.

The urge to give shows itself in the creativeness which is seen at an early age in children and which continues through adult life, expressed in different ways in the home and in business, in art, social work and social relations. This urge, controlled and used for the good of humanity, is capable of giving to the world the grandest and most sublime contributions of man to art and science. But alas, we also find the urge perverted as in the case of the evil genius, the gangster king and the proponents of anti-social philosophy.

The urge to get also lies in all of us. Indeed unworthy giving may be motivated by the desire to get. But getting of itself is not necessarily bad. Self-preservation is the urge in us to get and keep life; curiosity our search to get knowledge; collecting our attempt to get pleasure or security from possessions. Like giving, the urge which sparks our desire to get may be good, as when we work to get a livelihood for ourselves and our family, or study in our search for truth. But it may also become perverted when our getting turns to theft, our collecting to miserliness and our search for happiness to rape and self-gratification.

In human beings, the deepest satisfaction is found in those acts where giving is offered freely, without hope of reward, but is in fact recompensed. This is the pleasure enjoyed when praise or thanks is returned for a service gladly given or when the respect and love shown by one individual to another is returned and becomes mutual.

Circumstances of environment may prevent the growth of these urges into positive action or cause their power to be directed to bad ends. Our aim as teachers should be to encourage and utilize these powerful forces that lie within each of our children and so channel them, that their influence is directed towards all that is good and worthwhile and away from what is evil. This will improve not only our pupils' characters, but will aid them in their learning and us in turn, in our teaching.

THE WHOLENESS OF THE INDIVIDUAL

The easiest way to examine something carefully is to take it to pieces. One then learns all about the parts. But the tendency in such analytical study is to lose sight of the whole by concentrating on the parts. It is the old trouble of 'not being able to see the wood for the trees'. Too often in child study we are tempted to over-concentrate on certain aspects of the child's make-up and fail to see him as a whole.

The wholeness of the child is evident at birth. At this early stage in his life, the stimulation of one part of his body brings his whole body into action. A loud noise makes his whole body react in convulsive crying, whereas warmth and a secure hold lets his whole body relax. Body and mind are intimately related.

With greater maturity, the relationship between body and mind becomes increasingly co-ordinated, but the observer becomes aware of a third dimension within the child of his consciousness of himself. He reacts with pleasure, shame, fear or interest to the different kinds of situation in which he becomes involved. This inner spirit is as much a part of the child as the body or the mind and interacts with them throughout life. Only something seriously wrong disintegrates the intimate relationship that binds together the body, mind and spirit.

The child is never quite in equilibrium. Feed or starve his body and it affects his mind and spirit. Crush his spirit or stifle his intellect and it will be evident in his body. As he learns things with his mind, it affects not only how he thinks but how he acts. His response to his environment is not localized to one part of him but is the reaction of his total being. At some stages his body seems to outpace his control of it and he is awkward and ungainly. At others, his mind outstrips his body and he lives in a whirl of activity, never quiet, never still. Sometimes his spirit transports him in such awe and wonder that he finds his body and mind are not big enough to contain all he feels.

The importance of this, so far as teachers are concerned, is that we must not try to train just one part of the child. We must not concentrate on his intellect forgetting his body and spirit, nor emphasize physical training at the expense of his mind and spirit, and we must not so spiritualize our teaching of religion that it makes no demands on his body or intellect. We must deal with the whole child.

An understanding of the wholeness of the child is important in trying to overcome weaknesses in him. Moral weakness, for example may have physical causes and physical ill health may arise out of mental and spiritual problems. Doctors have increasingly realized the importance of the power of mind over matter in the task of getting better from sickness, and teachers need to appreciate the fact that education must deal with the body, mind and spirit of the child if it is to help him to grow into a healthy, well-balanced adult.

CHILD DEVELOPMENT

What we call growing up is not a smooth process of development but rather a series of periods of progress interspersed with periods of rest. The growing child progresses rather as the hare did in his race with the tortoise. His rests allow very necessary consolidation to take place. Rapid growth in one direction must always be followed by consolidation. In this respect his development is like the modern building technique of reinforced concrete where the steel structure goes up with great speed but the building is not finished until the slower process of pouring and setting the concrete is completed and all the work of the various craftsmen has been done.

A new born child is a most helpless creature. Unlike animals such as the antelope which can trot alongside its mother within a matter of minutes after birth, the child must be carried everywhere for the first year or more; and whereas birds drive out their young from the nest within a few weeks, human offspring remain in their parents' care for years. Even the whale and the elephant, the biggest animals known, keep their young for less than ten years. A child turned out to fend for himself at that age would not survive. The process of growing up is more prolonged for the human child because life for him is more complicated.

For convenience, the development of the child can be thought of as four parallel processes, physical, mental, emotional and social. But you must remember that these are not separate and independent processes. They each react with the others and each makes possible the development of the others. The child is a whole.

Section B

THE GENERAL STUDY OF CHILDREN

1. From the first class in the primary school, collect as big a group as possible of children all aged six years. Weigh them and

HEIGHT	NUMBER OF CHILDREN	TOTAL
36 inches		0
37	|	1
38	||	2
39	|||	3
40	𝍸 |	6
41	𝍸 𝍸	10
42	𝍸 ||	7
43	||||	4
44	||	2
45	|	1
46		0
47		
		36

WEIGHT	NUMBER OF CHILDREN	TOTAL
36 pounds		0
37	|	1
38	|	1
39	|||	3
40	𝍸 |	6
41	𝍸 𝍸	10
42	𝍸 ||||	9
43	𝍸	5
44		0
45	|	1
46		0
47		
		36

Fig 3. Tables of height and weight of a group of 36 children aged 6 years

measure their heights. Record the number of children with the same heights or weights in the way shown in fig 3, making a mark in the middle column for each child. You will find it convenient for adding the totals quickly if you arrange the marks in groups of five as shown with the fifth mark being drawn horizontally across the other four. Now prepare graphs like those shown in fig 4, and plot on them the number of children of each height and weight respectively. Study your graphs and see if you can see any similarity to the bell-shaped graph of a normal distribution curve as shown in fig 2. If time permits, repeat the experiment for a group of older children of about twelve years of age.

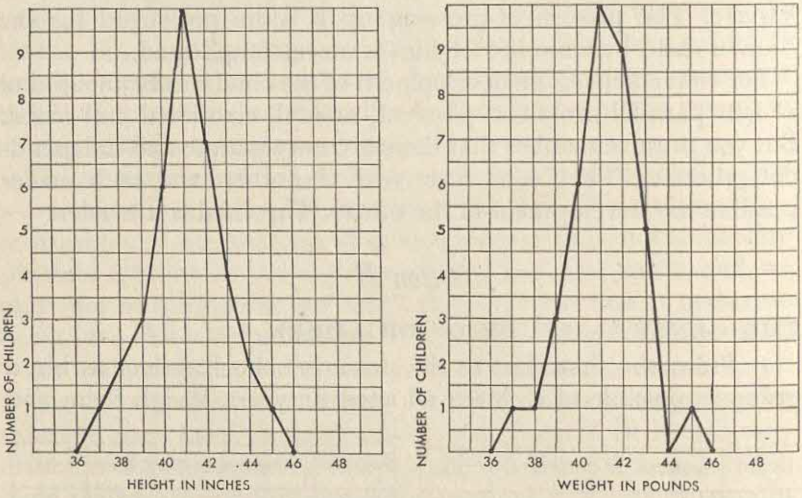


Fig 4. Distribution of height and weight graphed for a group of 36 children aged 6 years

2. Study the distribution of activities shown in fig 5 for a child at birth and at the age of one year. These figures are averages for a number of children. Recreation in these examples covers any periods, apart from sleeping and dozing, in which no purposeful activity appears to take place. Vigorous enjoyable kicking is therefore classed together with play as activity, not recreation.

Draw up similar charts for a number of older children and also one for yourself and study the pattern of change with increasing

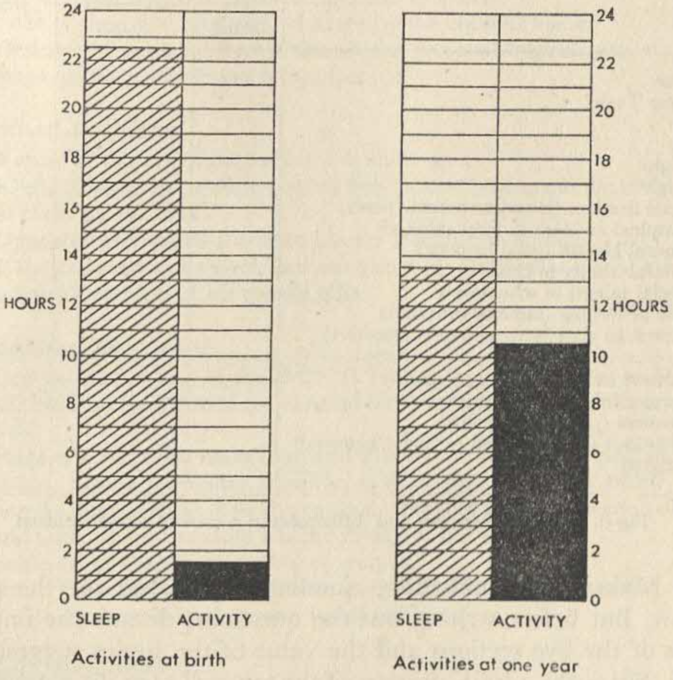


Fig 5. Comparison of main activities in the baby

age. In this case, recreation should be taken in a way similar to that described in the Word to Students about Recreation on page 13.

3. In a class of children, find in how many ways the children differ from each other and in how many they are alike by filling up the table in fig 6. If all the children are alike in a particular respect put an X in the first column. If a few are different but the majority are alike put an X in the second column. If, however, they are all different, place your mark in the third column.

Discuss your results and try to explain the factors which cause the likenesses and differences.

	ALL ALIKE	MAJORITY ALIKE	MIXED
Tribe			
Home Town			
Age			
Sex			
Height			
Weight			
Facial features (broad or narrow noses)			
Complexion (dark or light skinned)			
General Health (good or poor)			
General ability in class			
Special talents in schoolwork			
Style of writing (same or different)			
Interest in class (attentive or inattentive)			
Attitude in class (happy or afraid)			
Manner in class (bold or shy)			
Manners (polite or impolite)			
Behaviour (well behaved or badly behaved)			
Religion			

Fig 6. Table of likenesses and differences in a class of schoolchildren

4. Make up a child-study questionnaire based on the guide below. But before writing out the questions, discuss the implications of the five sections and the value of the topics suggested in each. Since the administration of the test will take up a good deal of time, it is best to leave its use until holiday time when you will have spare time and also when you can choose a child already well known to you.

SUGGESTIONS FOR A CHILD-STUDY QUESTIONNAIRE

A. *General Information*

i. Name and address of child.
ii. Tribe and clan.
iii. Date of birth and age at the time of the study.
iv. Sex.
v. Weight, height.
vi. Relevant information about the child's parents and his brothers and sisters including his own place in the family e.g. eldest, youngest, etc.
vii. School attended.

B. *Physical Development*

i. Physical likenesses such as facial appearance, skin complexion, build, abnormalities, etc., to either parent.
ii. Unusual physical qualities or gifts.

iii. General health of the child with notes of main diseases from which he has suffered and the effects, if any, left by them.
iv. Note of the usual kind of food eaten by the child at home.
v. Child's normal condition of cleanliness, personal hygiene, etc.
vi. Ratio of sleep, work and recreation.

C. *Mental Development*

i. Nature of the playthings which the child uses.
ii. Kinds of books in the home, apart from school books, and the use made of them by the child.
iii. Opportunities which the child has for learning at home.
iv. If the child attends school, find out about his progress at school and his teacher's opinion of his mental gifts.

D. *Emotional Development*

i. General disposition of the child. Is he happy, active, eager to learn, unafraid or not? Are there unusual factors such as poor bladder control?
ii. Make a note of his main likes and dislikes with regard to people and things, paying particular attention to those that make him afraid.
iii. Family relationships, how the various members get on with each other and with whom the child has the strongest ties of love.
iv. Evidence of temper or control of temper.
v. Study the child's play activities and note what evidence there is of innate tendencies in these and in his hobbies.

E. *Social Development*

i. How well does the child get on with strangers?
ii. Note evidence of preferences to play with other children or alone.
iii. Habits, like those of his family with regard to tidiness, punctuality, thrift, careful work, etc.
iv. Manners and general behaviour.
v. Attitude and respect to older people and those in authority.
vi. Moral character, evidence of power of religion in his life.

THE INNATE TENDENCIES OF MAN

1. The innate tendencies of man which are of importance to education are listed below together with their usual modes of expression. Pay a visit to a school and note any evidence of the natural expression of these tendencies in the children's play. Note also any evidence of ways in which the teacher makes use of these tendencies in teaching.

INNATE TENDENCY	USUAL MODE OF EXPRESSION
Creativeness	Building, constructing, modelling, assembling, selecting, arranging, pattern making, shaping, inventing.
Collecting	Making collections of material things or accumulating abstract but measurable qualities like knowledge, power, etc., all of which either give pleasure, are useful, valuable, or likely to impress somebody else.
Curiosity	Wandering, investigating, experimenting, wondering.
Gregariousness	Seeking out and enjoying the company of others, making friends, finding pleasure in team work and doing things with others.
Self Assertion	Leadership, asserting independence, pride, aggressiveness, ambition, teasing, bullying, attack.
Self Submission	Obedience and devotion to another person, respectfulness, humility, shyness.
Self Preservation	Running away from danger, fear, anger when frustrated or interfered with.
Play	Performing activities which exercise physical and mental skills, imitating people or things either seriously or in make-believe, making use of objects, toys, materials in the furtherance of play.

Fig 7. Human innate tendencies of value to education

2. Classify the innate tendencies listed in fig 7 according to whether they are 'giving' or 'getting' tendencies. Which have an element of both?

3. Which of the innate tendencies listed in fig 7 are peculiar to man and which are common to man and animals? Compare particularly the constructional instincts of some animals you know with man's constructional urge. What fundamental difference does this comparison illustrate between animal instincts and the innate tendencies of man?

4. Discuss ways in which you could utilize the innate tendencies of children in teaching.

5. Discuss the problem of gaining control over each of the innate tendencies in ourselves, so that they can be overruled when necessary or utilized fully when expedient.

THE WHOLENESS OF THE INDIVIDUAL

1. Prove the positive link that exists between body, mind and spirit by carrying out the following experiments:

(a) Ask your local dispensary for figures of the average number of schoolchildren and students treated each month. Compare these figures with those for the month in which the annual examinations are held. Is there a significant difference? If so, what does it suggest?

(b) Invite a student from another class to come to your classroom. Blindfold him and let him stand on top of a table. Tell him that four students are going to lift the table carefully with him standing on it and promise that no harm will come to him. The four students should then lift the table gently about an inch off the floor but they should gradually lower their heads so that as they speak the blindfolded student will get the impression that he is being raised higher and higher. The rest of the class can help in this illusion by appropriate comments. Study the facial expressions and body reactions of the student as he is lifted, what effect does his mental state have on his body?

(c) Ask a student to repeat each of the following number series after you. You must enunciate them clearly and speak slowly, about one number per second. Note how many he repeats exactly right.

368359
158237
645497

8350417
1605921
9563752

Repeat the experiment with the same student, but this time, while he repeats the numbers, place his fingers in a thick book laid on a table. While the experiment is going on, get another student to stand on the table and step on and off the book repeatedly. Note how many numbers he repeats exactly right this time. Was he worse than the first time? If so, explain the result.

(d) Find the pulse rate of a student timed over a period of exactly one minute while he lies relaxed either on a table or on the floor. Then note his pulse rate for one minute while he answers mental arithmetic questions as quickly as possible. Is there a change in his pulse rate? If so, explain the cause.

2. Discuss or debate the following assertions:

(a) It is better to feel well than to be well.

(b) Worry kills as well as disease.

(c) Perfect love casts out fear.

(d) The heart of the world's trouble is the trouble of the heart.

3. Discuss with an experienced teacher, cases of problem children, the nature of their problems, their cause and cure.

For Further Reading

W. E. BLATZ.	*Understanding the Young Child.*	University of London Press.
A. GESELL.	*The Child from Five to Ten.*	Hamish Hamilton.
K. LOVELL.	*Educational Psychology and Children.*	University of London Press.
A. MONTAGU.	*Human Heredity.*	New American Library of World Literature.

2. PHYSICAL DEVELOPMENT

Section A

STAGES IN PHYSICAL DEVELOPMENT

THE physical development of the child begins at conception. From that moment he begins to increase in size and weight and complexity until he is full-grown about the age of twenty. During this period the child's body does not grow uniformly. Some parts mature before others and so at no stage does the child have a body of reduced adult proportions. A child of two or three years en-enlarged geometrically to adult size would look grotesque.

On the other hand some parts of a child's body are full-grown at birth and do not change during his life. The inner ear structure of the newborn baby is an example of this for it is identical in size with that of the adult. Stranger still, some organs are present in the young child which later disappear in the adult. The thymus gland, for example, is present in the infant, but when this persists into adulthood, it becomes a fatal danger to the individual in cases of shock.

The physical development of the child, if it proceeds normally, may be thought of as moving from one rung to the next on a ladder. As each stage is reached it brings the next within reach, so that progress is continued from the elementary reflexes of the newborn child, through the sitting, standing, walking and running stages, and so to the complex feats of the athlete and juggler.

The main stages in the physical development of the child are summarized below and in fig 8.

1. *Pre-natal (from Conception to Birth)*

During this period the child grows from a single tiny cell to a baby of 6 or 7 lb. Although his sex is determined at conception, this can be seen in the foetus only about three months before birth. At this time the mother will become conscious of her child's movements in the womb and increasingly so of his growth. During the last three months before birth, the child will double his weight, increase in size about 50 per cent and be prepared for the great

	AGE	PHYSICAL CHARACTERISTICS	ACHIEVEMENTS
PRE-NATAL	− 9 months	Union of male sperm with female ovum (less than the size of the head of a pin).	Conception.
	− 6 months	Large head with eyes, ears nose and mouth evident. Whole body about 3 ins. long. Weight about 1 oz.	Heart beating.
	− 3 months	Limbs developed hands and toes evident. Body about 12 ins. long. Weight about 3 lbs.	Movements of body and limbs discernible.
BIRTH		Possesses all the physical characteristics of humans but out of proportion compared with adults. Height about 18 ins. Weight about 6½ lb.	Survives the physical strains of birth. Breathes air, feeds by mouth, cries, sees, hears, feels, tastes and can smell.
INFANCY	+ 3 months	Increases in height to about 21 ins. and in weight to 11 lb.	Can kick legs vigorously, roll over from lying on back, lift head and smile.
	+ 6 months	About doubled birth weight. First teeth may appear.	Can sit by himself. Can be weaned gradually.
	+ 9 months	Rate of physical growth begins to slow down.	Can stand with help. Crawls.
	1 year	Rate of physical growth further reduced.	Stands by himself and may even walk alone.
	2 years	Steady increase in size.	Learns to run.
CHILDHOOD	2–5 years	Continued steady increase in size.	Improves in running. Learns to jump and throw.
	6–12 years	Rate of physical growth slows down but consolidation continues. Second teeth appear.	Co-ordination develops further, making skills like reading and writing possible.
ADOLESCENCE	12–16 years	Sex organs develop. Hair begins to grow on various parts of the body as on adults. Body proportions begin to approach those of the adult.	Muscular co-ordination improves.

Fig 8.—continued

	AGE	PHYSICAL CHARACTERISTICS	ACHIEVEMENTS
YOUTH	16–21 years	Height growth ceases but consolidation increases weight slightly.	All skills within the range of the individual. Training in skills like games and athletics can result in rapid improvement and the achievement of high standards.

Fig 8. Stages in Human Physical Development

day of his birth. His lungs will be made ready for breathing air, his digestive system for feeding from his mouth instead of through his umbilical cord and his bones will gradually harden. Even if born as much as two months before his expected birth a baby can survive if he is given special care.

2. *Infancy* (*Birth to* 2 *years*)

The child at birth seems small and helpless but all his senses function and his body is capable of considerable activity, including reflex actions like crying, grasping, blinking and those associated with feeding. During this period he will triple his birthweight and learn to respond much more specifically to the messages received by his senses than he did at birth. He will end up by being fully weaned and being able to live on a ratio of sleep to activity of about 3 : 2 as compared with 40 : 1 at birth.

3. *Childhood* (2–12 *years*)

As the child grows older, his rate of increase in size and weight is slowed down. It is just as well too, for if each of us had twenty years of growth at the rate of the infant, our present houses would be much too small. But, in fact, at the age of three the child will have reached about half his adult height.

The period of childhood is often divided into two periods, from 2–5 years and from 6–12 years, called *early childhood* and *later childhood* respectively. The changes in the early period are more dramatic. In it, the child gains control, or a semblance of it, over his body so that he learns to run and jump and throw and to control his eyes so that he can concentrate them on small objects. But in the latter, he improves his control so that he becomes better skilled in these activities. His muscles grow in strength so that he can do more and do better.

4. *Adolescence* (12–16 *years*)

The physical changes which herald sexual maturity are the most important of this period. But the child's body continues to grow in size until it approaches full adult size. The boy parts company with the girl in physical development. The latter's performance in physical activities like racing, jumping and throwing may not improve, whereas the boy's does and his interest in sports and games may become excessive and people describe him as 'mad keen' on football.

5. *Youth* (16–21 *years*)

This period brings to an end the physical growth of the individual apart from the increase in weight that accompanies sedentary habits or excess of food. It is a quiet period externally, but within there is a maturing of the body and an improvement in co-ordination which makes possible high standards of athletic performance in both boys and girls.

HEREDITY AND PHYSICAL DEVELOPMENT

You may have sometimes wondered why you were born a human being and not a goat or a fish. You may also have wondered why people do not remain as babies but grow up into adults or why some people are handsome and others are ugly. The answer to all these questions, in physical terms, is *heredity*.

You developed as a human being because you were conceived by the fertilization of your human mother's ovum by your human father's sperm; the only creature that can develop when these unite is a human baby. Only human sperm can fertilize human ova, just as only the sperm of goats can fertilize the ova of goats. There can be no crossing of species.

You have grown up because of your body's built-in mechanism for growth patterned on that of your ancestors.

Each human female ovum is similar, but none is identical, not even those from the same woman, though they are more alike than the ova from different women. The same is true of male sperm. Hidden in these reproductive cells are many of the characteristic features of the person from whom they come and these in turn are like those of his parents and so on back in decreasing degrees to his ancient forefathers. This heredity can be traced to two tiny parts of the nucleus of the ovum and sperm cells known as *chromosomes* and *genes*.

Chromosomes and genes determine all our physical characteristics. In humans, the male contributes 23 chromosomes in the sperm and the female a further 23 in the ovum. But of these each parent supplies one chromosome different in character and structure from the 22 others. These are the *sex chromosomes*.

There are two types of sex chromosomes. Those who study heredity call one X and the other Y. The female ovum always carries a sex chromosome of the X type, while the male sperm may carry sex chromosomes of either the X or Y type. If the female ovum is fertilized by a sperm cell carrying an X-type sex chromosome, the resulting fertilized cell will contain two sex chromosomes of the X type and a female child will develop. If the male sperm brings a Y-type sex chromosome, the resulting fertilized cell will contain one X and one Y sex chromosome. Such a union produces a male child. You will see now that sex is determined by the father at conception.

Genes are contained in the chromosomes and have been described as 'small packets of chemicals' which influence the growth of the cells surrounding them. They cause some cells to develop into muscles, others into brain, bone, nerves, skin, etc. They therefore affect our shape and size, our mental ability and even our potential talents. If the genes do not act properly they produce serious abnormalities.

It will be seen from this that we receive all our physical characteristics at conception as the result of heredity. Birth is not the beginning of our life, but only one stage in the process of development from conception to maturity.

Heredity determines our basic structure so that we have a body suited to walking on two legs like a man instead of on four like a dog or of flying like a bird. Heredity also determines the inborn patterns of behaviour in animals which we call *instincts*. In man there are no such inflexible behaviour patterns.

At birth a child has certain reflex actions such as the grasping tightly of anything placed in his hand, the sucking of any object put in to his mouth or the contraction of the pupils of the eye in response to light. These reflexes are not learned but are inherited and are common to all men.

Many of our inherited characteristics are not evident at birth. It is common for someone to see in a baby a likeness first to one parent and later to the other or to a grandparent. It is not possible to tell at birth whether the child will be tall or short, pretty or plain when it grows up. But these characteristics are latent in the child from conception.

Abnormalities may be handed down from parents to children. Idiocy, limb deformity, colour blindness, weak hearts and so forth sometimes run in families. When this is so, it is almost certain that the cause is heredity.

At puberty, certain cells split, but instead of dividing up and duplicating themselves as they have been doing ever since conception with 46 chromosomes in each from the union of the two parents' cells, they split but carry with them only 23 chromosomes. These are the reproductive cells that will be ova in the case of girls and sperm in the case of boys. The selection of the 23 chromosomes which are retained from the total of 46 is, from the human point of view, pure chance. The individual has no influence over the selection.

ENVIRONMENT AND PHYSICAL DEVELOPMENT

Environment influences our development throughout our whole life because the fertilized cell responds to its environment throughout all the stages of its existence from conception to death. Before birth, it grows into the *foetus* or unborn child within the environment of the womb. This environment depends on the health of the mother and varies according to her diet and activities.

Usually the foetus grows until it is born normally. But adverse conditions in the pre-natal environment may cause an abortion or damage resulting in abnormalities or death. For example, an unbalanced diet taken by the mother may cause an oversize baby whose birth is difficult, resulting in physical injury. Or diseases, such as venereal disease and others, contracted by the mother before the birth of her child may affect the child and result in mental deficiency or blindness. Physical pressure on the foetus from the umbilical cord may similarly cause physical or mental damage. So also may certain unsuitable medicines taken during pregnancy. Environment is always a critical factor in our response and in our growth.

After birth, the child is subjected to a much more complicated environment composed of physical, emotional and social forces. The physical environment experienced, varies greatly from one person to another even in the same family. Studies in the growing up of identical twins living in the same house have shown that, even where the main factors of environment are the same, there are small differences of environment which result in big differences of response. For example, one may get an infectious disease which weakens him, while the other does not; or one may put on more weight than the other.

Differences in development such as these may be due to a host of causes all of which are environmental. One twin gets infection because he goes somewhere the other has not been or perhaps because he has not the same resistance to it as the other. One looks fatter than the other because he has worms or maybe because he eats more starchy food than the other.

What we eat and how we live greatly affect our physical development. In Japan, the average height of children has gone up as the result of modern improved diets. In Britain, schoolgirls' feet are bigger than a generation ago. American women, on the average, are slimmer today than formerly because of their diet-consciousness and avoidance of fattening foods. Canoe fishermen have more powerful shoulders and arms than the average person but they have weaker legs. This characteristic is due entirely to the amount of exercise the respective limbs get. In West Africa, children have a natural resistance to malaria not possessed by people from other countries. This resistance has been gradually built up by repeated battles with malarial parasites in the blood.

In the effect of heredity and environment, choice has an influence which is less in the case of heredity than with environment. For example, choice influences heredity only in the matter of marriage and mating whereas it reaches widely into the forces of environment. Man, of all creatures, is the most free to choose his environment and the most able to adapt it to his wishes. People, today, travel widely, choose the area where they will live, the kind of house they will live in, their diet, their job, their friends. Choice is a factor we must take into consideration in any study of environmental effects.

PHYSICAL MATURATION

As we grow older, it becomes possible for us to learn more and more skills. This time-lag in achieving our ultimate capacity is due to what psychologists call '*maturation*'. By this they mean the physical development of the muscles and the co-ordinating system for their control that takes place in a growing child quite apart from physical exercise. As a result of maturation, activities become possible which hitherto were physically impossible. No amount of practice or encouragement will enable a six-month-old child to walk. Walking must await physical maturation which will strengthen the bones, enlarge the muscles and co-ordinate the brain and limbs to the degree necessary to maintain balance while moving.

Examples of maturation are to be seen in the muscle development and co-ordination required to make walking and reading possible. Because these activities are dependent upon maturation, it is a mistake to try to hurry the child. You must wait until he is ready. Readiness is usually indicated by the child's desire to perform the activity and by rapid progress once he starts upon it. Children who are launched into an activity for which maturation has not prepared them, often end up by succeeding later than usual by developing attitudes which prevent learning. This underlines the importance of respecting the individuality of the child in teaching and awaiting the natural preparations the body makes for learning new skills.

Training in skills will only be rewarded when the necessary maturation has already taken place. That is why teaching children to read before they go to school is of little value. In fact it often has an adverse effect. In the same way the intensive training by which athletes improve their performance is of no use with children. To be of value it must wait until the muscles have reached the state from which they benefit from intensive training and that is not until after the age of sixteen. Once maturation has taken place, a person is capable of rapid learning and good performance so long as his training is appropriate.

Puberty is the stage of adolescence in which maturation of the reproductive organs is completed. Before then, these organs are not ready for their function. Before puberty, neither sexual activity nor complete abstinence from it affects the maturation of the sex organs. Their readiness is dependent entirely on physiological development beyond the control of the individual.

PHYSICALLY HANDICAPPED CHILDREN

The average child has no handicaps to hinder his development except for the very temporary ailments found among children such as coughs, colds and infectious diseases such as measles, mumps and chicken-pox, or contagious diseases such as scabies and ringworm. No child should remain in school while he has some infection that may be passed on to other children, and so teachers should learn to recognize the symptoms of the common diseases of children.

A more troublesome condition is malnutrition. It results in physical weakness and susceptibility to disease. If you find evidence of it in any of your children you should take action at once. Fatigue, caused by lack of sleep or too much hard work, may be confused with malnutrition, but careful questioning will quickly show the real cause.

Permanently handicapped children are those who suffer from eye, ear and speech defects or those who have physical deformities. Those who have developed diabetes or who might be described as delicate children and therefore in need of special care are also classed as handicapped. Mentally and socially handicapped children are considered in succeeding chapters.

Defective eyesight may vary from minor conditions, in which the child finds difficulty in seeing objects clearly, to serious cases of almost complete blindness. The latter require special treatment and there are a number of schools for the blind in Africa, though there is an increasing desire amongst those concerned with the welfare of the blind to provide them with normal schooling together with sighted children.

The real task, so far as the teacher is concerned, is to find those children who have eye defects which can be cured or whose eye condition can be prevented from getting worse. But remember the treatment of eyes is specialist work and no teacher should prescribe glasses or any particular cure. His work is to identify those in need of treatment.

Frequent mistakes in a pupil's reading or in copying from the blackboard may indicate eye trouble. Any child who shows signs of weak eyesight should be brought to the front of the class so that eye-strain is at a minimum, and his parents should be advised that he needs an eye test from a qualified doctor.

In the same way, children's deafness may vary from conditions where hearing is just less than normal to those in which communication with the child by sound is impossible. It is not possible to educate the completely deaf child in a normal school though much headway has been made in some countries in providing special schools for the deaf.

Most deafness which develops after birth is the result of infection. Children whose ears run should therefore be advised to have immediate treatment from a doctor. Children should also be warned of the dangers to hearing which can result from physical damage done by pushing objects into the ears.

Some children are deaf only to certain kinds of sound; for example, the high-frequency sounds of speech like s, sh, f and ph. These are cut out from their range of hearing. Thus they do not hear speech clearly. The only action the teacher can take is to discover any child who does not hear well and place him near the front of the class. It need hardly be said that the teacher should always speak clearly and distinctly.

The most common speech defect is stammering. It is of nervous origin and it can be cured. You should avoid situations that make the stammering child nervous or afraid. Diligent practice in breathing naturally and in a relaxed way is vital to the cure of stammering. Singing and reading aloud are also helpful.

The problem of the dumb child is beyond the capacity of the teacher. Such a child can be helped however by specialists. Usually dumbness is associated with deafness and is due, not to disorders of the vocal organs, but to deafness. Speech is learned by imitating what is heard and so deafness, by preventing hearing, makes speech impossible to learn.

The teacher can help those children whose speech is not clear. In some cases this is caused by the roof of the mouth being soft instead of hard. Patient speech training with the children will repay the teacher in making good speakers of his children.

Physical deformities are a frequent cause of intense self-consciousness. This is aggravated by the cruel treatment such children often get from their fellows who ridicule their deformity. You should teach children to be thoughtful and sympathetic towards those not blessed with sound bodies. You should also encourage children with deformities to play as full a part in the life of the class as possible. This will help them to feel they are useful, wanted and loved and give them the sense of security so few of them enjoy.

Diabetic, epileptic and delicate children need special care. The initial treatment must come from the home under medical advice, but the teacher should be informed of their condition so that he knows what to do in cases of emergency and also how to treat them in the normal routine of the class.

Section B

MATURATION AND PHYSICAL DEVELOPMENT

1. Test the co-ordination of children of different ages by collecting a group consisting of every age from two to twelve years. Ask each to perform the tests below with a tennis ball. Demonstrate each test to the children. A test is satisfactorily completed if it has been repeated ten times, without stopping. In the case of the older children, the first test need only be repeated two or three times.

Co-ordination test

(a) Pick up the ball with one hand and lay it on the ground again so that it does not roll when released.
(b) Throw the ball to the examiner so that it can be caught without difficulty.
(c) Catch the ball with two hands when carefully thrown by the examiner.
(d) Catch the ball with one hand when carefully thrown by the examiner.
(e) The child throws the ball in the air and catches it again with one hand.
(f) Bounce the ball with the palm of the hand on a flat cement floor without stopping.
(g) Bounce the ball in the same way with a ruler held in the hand.

Draw a graph like that in fig 9 for each test and enter the scores out of ten for every child on the appropriate graph. Compare the finished graphs and draw your conclusions with respect to the age at which maturation makes possible the co-ordination necessary for these skills.

2. Test the following reflexes with your fellow students:

(a) *Withdrawal*—Blindfold the student and prick his hand lightly with a pin or needle.
(b) *Blinking*—Make a tube with a piece of paper. Blow lightly through the tube so that the air strikes directly on the student's eye. Alternatively, make as though to strike him on the face with your hand, but stop short of actually striking him.
(c) *Knee jerk*—Seat the student on a chair with one leg resting across the other. Tap the supported leg immediately below the knee-cap.

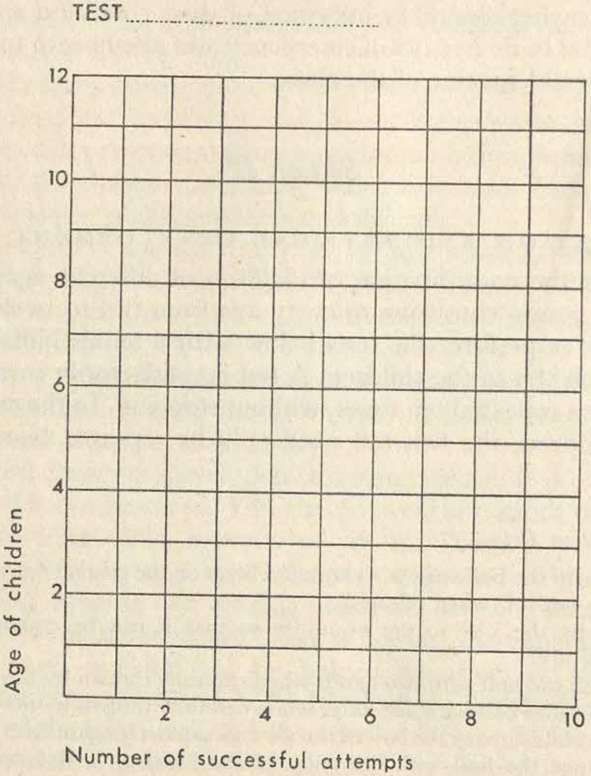


Fig 9. Graph for tests of muscular co-ordination

Answer the following questions about the test you have carried out:

(a) What was the reaction in each test?
(b) What lapse of time was there between applying the stimulus and getting the response?
(c) Could the student prevent his reaction?
(d) What value to the infant and the adult are reflexes such as these and others like sucking, grasping, digestion, heart-beat and breathing which require no conscious control during the period of life in which they occur as reflexes?

3. What is the relevance of the questions below to maturation? Discuss this question first, then find the answers to the questions below by using them as a questionnaire with a child of more than six years of age. When you have completed the interview, write out a brief summary of the answers and note your conclusions.

(a) Is the child big or small for his age?
(b) How many teeth has he? How many are baby teeth and how many are second teeth?
(c) How well co-ordinated are his muscular activities? Test him with balance exercises—speed writing (to see how many words he can write in one minute) and tests like those on page 45.
(d) What sports or skills is the child eager to start learning? You should question the child carefully here so as to avoid putting suggestions into his mind and also to ensure that the desires are real and not imaginary.

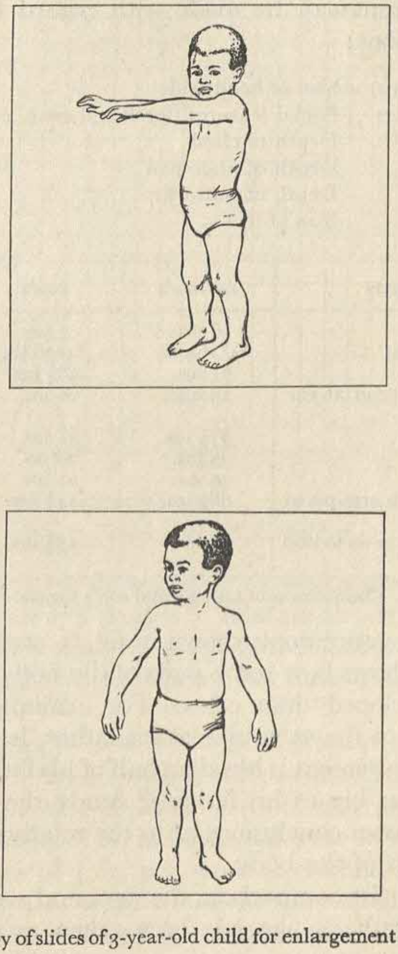


Fig 10. Copy of slides of 3-year-old child for enlargement by projection

4. Make a projector slide of a child of about three years of age by taking photographs on 35-mm. film of the child in the positions shown in fig 10. Alternatively, trace carefully on to two pieces of clear celluloid each 2 in. square the figures on fig 10. Use black Indian ink.

Project the slide, using a slide projector, on to a wall. Adjust the distance of the projector from the wall so that the child's height exactly equals the height of a maturely developed student of the same sex standing against the wall in the same positions. The student should dress in physical education clothing so that careful comparisons can be made with regard to the following physical dimensions:

Size of head (front)
Width of shoulders
Width of waist
Width of hips
Length of arms
Length of legs
Size of head (side)
Facial features (forehead, nose, etc.)
Depth of chest
Depth of abdomen
Depth of buttocks
Size of feet

MEASUREMENTS	FATHER'S	SON'S	% OF FATHERS
Age	18 yrs	3 yrs	16%
Cube root of weight	$\sqrt[3]{164}$ lb.	$\sqrt[3]{36}$ lb.	60%
Height	71 ins.	38½ ins.	54%
Circumference of head at ear level	23 ins.	20 ins.	87%
Chest	37½ ins.	21 ins.	56%
Waist	33 ins.	20 ins.	61%
Hips	39 ins.	21 ins.	54%
Length of arm from arm-pit to finger-tips	28½ ins.	14½ ins.	51%
Length of leg from groin to heel	34 ins.	15½ ins.	46%

Fig 11. Comparison of father's and son's measurements

5. (a) The measurements shown in fig 11 are for a father and son. The table shows how some parts of the body of the child are more fully developed than others. For example, assuming the child will grow to the same size as his father, is it not surprising that his leg measurement is less than half of his father's whereas his head is almost as big as his father's? Study the figures carefully and draw your own conclusions as to the relative rates of growth of different parts of the body.

Note that to assist comparison, the ages and weights have been adjusted. The father's age has been taken as eighteen on the assumption that no growth took place after that time. Instead of using the actual weights of the father and child, the cube roots of these have been used because this makes for a better comparison with the other linear measurements.

Now obtain your own measurements for a number of children between the ages of one and eighteen years together with those of their parents. Be careful to use only parents and their children of the same sex. Do your figures tell the same story?

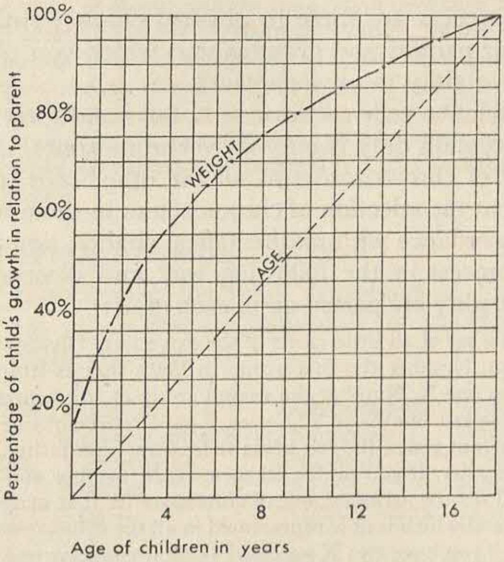


Fig 12. Rates of growth in children

(b) Study the graph shown in fig 12 which shows the approximate rate of increase of weight in relation to age as obtained by plotting figures for a number of children of different ages. Do this for the various other measurements you have obtained from your experiment.

Study all the graphs and try to draw final conclusions on the physical growth of children from birth to maturity in relation to total height, weight, size of head, length of arms and legs.

6. If a baby weighs 6 lb. at birth and were to continue to gain weight at the rate of 4 oz. per week (a normal rate of increase during the first year) what would be his weight at the age of eighteen years? This calculation should help to show you that the

rate of growth in children is not maintained during the period of physical growth.

HEREDITY AND ENVIRONMENT

1. Note down as many of your physical characteristics as you can which you recognize as being similar to:

(a) your father and grandfather.
(b) your mother and grandmother.

What differences are there in physical characteristics between you and your parents and grandparents which you can attribute with some certainty to environment?

2. Reproductive cells are formed in boys and girls at puberty. These cells contain only twenty-three chromozones, i.e. only half the number of chromozomes as all the other cells in the body. Assuming that the selection of chromozomes in these reproductive cells is in accordance with mathematical chance, you can demonstrate the process in the following way and illustrate how the factors of heredity are passed on to each of us:

(a) Make a set of 46 little cards of the same size. Divide them into two equal groups. Number the first group in black figures from 1 to 22 and mark the last one X. Number the second group in red figures from 1 to 22 and mark the last one X or Y. Let each card represent one chromozome and its attendant genes, the red being those from your father and the black from your mother. If you shuffle all these cards together and lay them face up, you will see the arrangement of chromozomes that originated at your conception and which is now represented in all the cells of your body. What sex are you if you have two X sex cells? What if you have one X and one Y?

(b) To find the chromozomes you might pass on to your child, collect up the cards again, remove the X and Y cards, shuffle the cards well and lay down 22. If you are a female, lay down the black X card. If you are a male you may lay down either a red X or Y card. You will see from the cards thus laid out which characteristics you are going to pass on from your mother (black numbers) and which from your father (red numbers). Who is your child going to resemble most? Make a note of the cards laid down.

(c) If you repeat the experiment, you will get a different set of cards. Some of them will be the same as the first set and this explains why there are family likenesses. The chances that you will get all the same cards again is well-nigh impossible. That is why every baby born is unique.

3. If you know of any identical twins, make a special study of their physical development because their body cells are identical and any differences that exist are due either to environment or the response they have made to environment through choice.

4. Try to make a brief case study of two children in school, one of whom has a very good health and attendance record, while the other has a poor record of health and school attendance. Question them carefully, trying to find out the proportional effect of heredity and environment in their respective records.

5. Discuss or debate the following questions and assertions:

(a) 'Films and beauty contests are changing our ideas of physical beauty and will eventually change the appearance of our race.'

(b) 'The control of disease and the consequent decline in the death rate is one of the greatest dangers to future civilization. By increasing rapidly the population of the world and by allowing the weak and unhealthy to survive and pass on their infirmities, the survival of man himself is in peril.'

(c) Find out what is meant by the following terms, 'evolution' and 'creation' as applied to life upon the earth. Which of them helps to explain most satisfactorily the existence of species if it is true that there can be no crossing of species?

CHILDREN WITH PHYSICAL DEFECTS

1. Learn to recognize the main symptoms of the following diseases and any others that are commonly found among children in your part of the country:

The common cold.
Bronchitis.
Whooping cough.
Pneumonia.
Influenza.
Malaria.
Cerebral spinal fever.
Tuberculosis.
Measles.
Mumps.
Chicken-pox.
Smallpox.
Bilharzia.
Filaria.
Guinea worm.
Intestinal worms.
Diarrhoea.
Dysentery.
Scabies.
Leprosy.

Learn also the principles of first-aid so that you know what to do with accidents that happen at school.

2. Study the following signs of fatigue and discuss how fatigue can be avoided in normal school life:

Lack of concentration.
Wrinkling of forehead.
Relaxed open mouth.
Head not held up well.
Decline in usual standard of work.
Headache.
Loss of appetite.
Stomach-ache.

You can test a child for fatigue by asking him to raise his arms sideways to a horizontal position with the palms of the hand facing downwards. In the case of a fatigued child the thumb or the whole hand will drop whereas in the normal child these will remain straight and in line with the arm.

3. Study the following signs of eye trouble and advise children whom you suspect of eye defects to get immediate treatment:

(a) Red eyes.
(b) Eyes that are sensitive to pressure.
(c) Discharge from the eyes.
(d) Excessive headaches.
(e) Squinting or cross-eyes.
(f) Habitual turning away from bright light.
(g) Need to hold writing very close for reading.
(h) Looking sideways at print in order to read.
(i) Screwing up the eyes when examining an object.
(j) Straining the eyes when looking at distant objects.
(k) Faulty reading.

4. Study the following signs of ear trouble and advise children you suspect of having something wrong to get immediate treatment:

Singing or ringing of the ears.
Earache.
Discharge from the ears.
Dizziness and headaches.
Holds head sideways with one ear towards the speaker.
Inattentive.
Misses things said when he cannot watch the teachers lips.

5. Discuss the problems of children abnormally tall, fat or small for their age and how they can be helped to feel happy in school. Discuss in the same way children with physical deformities.

For Further Reading

See the books listed on page 34.

3. MENTAL DEVELOPMENT

Section A

STAGES IN MENTAL DEVELOPMENT

Just as the physical development of the child can be traced through a number of stages, so his mental development follows a similar pattern of periods, some of surging progress and others of quiet consolidation.

The power of the mind is rooted in the brain, but it is dependent upon the whole body for its expression. Your mind would be of little use to you if you could not hear or speak or if you could not move even the smallest part of your body.

The link between the brain and the body is the nervous system, that vast network of nerves consisting of more than 20,000 million cells, some only thousandths of an inch in length and others more than three feet long. These reach out from the brain to every part of the body. Some are responsible for carrying to your brain every sensation of pain, sound, sight, touch, taste and smell at speeds of up to 200 m.p.h. from the *receptors* or nerve endings found all over the surface of your body. Others, called *effectors*, carry the orders from your brain to muscles in your body so that you can wink, smile, cry, run or do what you please.

Almost everything you do, whether consciously or unconsciously, is the result of the activity of the mind channelled to the movable parts of your body through the nervous system. Because movement is involved, psychologists call this *motor activity* as opposed to the activity like thought, reasoning, remembering and so on, which can be isolated in the brain. Fig 13 shows the relationship of *motor* activity, which involves the lower part of the central nervous system, and *intellectual* activity which can be linked with the whole system, or isolated at will to the upper part.

Reflexes, examples of which are described on page 45, are the only motor activities which short-circuit the brain. Instead, the message from the receptors passes directly to the effectors following what is called the *reflex arc*. The brain, however, is informed of what has happened. Valuable time is saved by following this shorter and more direct route.

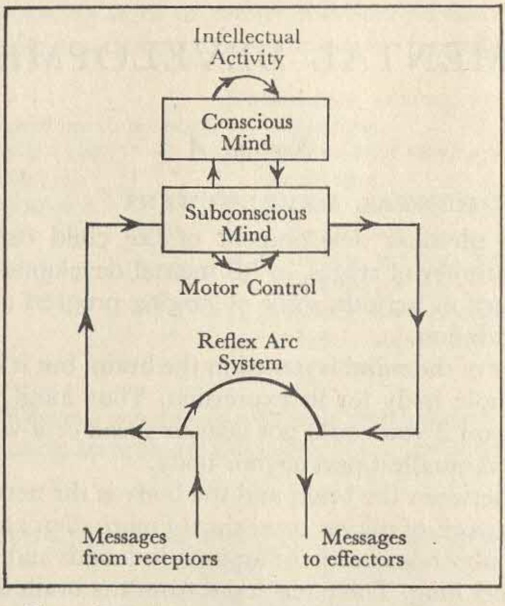


Fig 13. Functions of the Central Nervous System

It is through the independent, intellectual activity of the brain that you learn from experience and plan your future activities. Your mind can be a whirl of activity without a muscle of your body moving. It is this ability to think rather than simply react physically that makes men and those animals with a brain so much more adaptable than the humbler creatures without one. Man has power over all other living creatures because his capacity for intellectual activity is greater than that of any other animal.

It will be seen then, that in man, and the child for that matter, the central nervous system has two main functions, namely, *motor control* and *intellectual activity*, the one concerned with responding, reacting, performing and the other concerned with thinking, understanding, planning and so forth. An understanding of these two functions is important in any study of children and the way they learn.

The central nervous system is an integral part of the body; so you should not think of mental development as something apart from physical development. However, for convenience, we can trace the mental development of the child through certain stages like those we considered in relation to physical development. They are summarized below and also in fig 14.

	AGE	MENTAL CHARACTERISTICS	ACHIEVEMENTS
PRE-NATAL	− 9 months	Growth of brain begins.	
	− 6 months	Nervous system exists in simplified form.	Heart beating.
	− 3 months	Brain nearly completely formed.	Reflex actions such as a grasping and withdrawal.
BIRTH		Nervous system complete but brain weighs only approximately one-quarter of adult brain.	All reflex actions developed such as breathing, crying, sucking, swallowing, digesting, elimination from bladder and bowels. All sense organs respond to stimulation.
INFANCY	+ 3 months	Brain grows in size and weight and responds to environment.	Generalized movements only. No proper control.
	+ 9 months	Continued growth and responsiveness.	Learning more obvious. Improved control over motor activities, e.g. vocal organs begin to produce syllables.
	+ 18 months	Growth continued.	Some words perhaps only intelligible to mother.
	2 years	Growth continued.	Vocabulary of over 200 words.
CHILDHOOD	2–3 years	Growth continued.	Vocabulary of about 900 words.
	4–5 years	Increasing curiosity and thirst for knowledge.	Vocabulary grows rapidly and speech is made in proper sentences.
	6–12 years	Brain almost full grown. Curiosity continues.	Great increase in factual knowledge, beginnings of reasoning.
ADOLESCENCE	12–16 years	Growing mental independence.	Sometimes a reversal of co-ordination with adverse effects on games and athletic skills, particularly with girls. Further increase in knowledge and development of intellectual activity.
YOUTH	16–21 years	Maturer attitudes and behaviour develop.	High degree of co-ordination making possible high performance in skills. Further increase in knowledge and intellectual activity.

Fig 14. Stages in Mental Development

1. *Pre-natal* (*From Conception to Birth*)

The brain is the first mechanism of the body to develop following conception. Even as early as five months before birth when the child is only about 4 in. long and about 2 oz. in weight, he is capable of responding to a stimulus applied to his face. Gradually the whole nervous system develops so that even a month or so before birth, the child is capable of all the motor activities that are necessary for survival after birth.

2. *Infancy* (*Birth to two years*)

At birth, although the child possesses all the reflex activities that enable him to survive, he *knows* nothing; his *knowledge* is absolutely *nil*. The result is that his behaviour at first is entirely *reflex*. He has no control over it.

During the first two years of life we say the child *learns* to sit, stand, crawl, walk and talk. What really happens is that his brain gains sufficient control over his growing body, limbs and vocal organs to do these things. Motor control is the chief product of this stage. There is little visible evidence of intellectual activity.

3. *Childhood* (*2–12 years*)

In this period the child launches out into an intensive search for knowledge. Questions like 'why?' and 'what?' are constantly on his lips. 'Let's find out', seems to be his philosophy of life. As a result, his knowledge increases rapidly and his experience grows sufficiently to allow *abstract thought*.

The greatest mental achievement in early childhood is the conquest of *language*. This, together with the help of physical maturation, brings within reach of the child the learning of other forms of language skill like reading and writing. As he passes from early childhood to later childhood, the beginnings of abstract thought are made possible for the child by his growing control of language and the concepts that are an integral part of abstract thought.

4. *Adolescence* (*12–16 years*)

The rapid changes taking place in the child's body during this period are often reflected in an apparent out-of-step relationship between mind and body. The activity of the mind and its demands upon the body may overtax the child's physical strength. The physical changes taking place in his body often make the child's muscular co-ordination seem awkward; but this is just a phase. Adolessence, with its physical changes is often associated with emotional effects caused by the intensity with which the young person finds his feelings working in him. But it is a period whose beginning and end are difficult to determine precisely because adolescence merges imperceptibly into the neighbouring periods of childhood and youth. However, during it, his growing experience makes him increasingly capable of abstract thinking.

5. *Youth (16–21 years)*

The final stage in growing up is marked by the attainment of harmony between body and mind. Individuals are capable of high performance in physical skills. In creative work too, the individual may reveal evidence of latent talents. Intellectual activity becomes more vigorous, or potentially so, and youths feel more confident of their ability. All that is lacking is the depth and breadth of experience that makes men wise and fits the mature adult for posts of responsibility.

HEREDITY AND MENTAL DEVELOPMENT

The brains of men of high intelligence have been compared after death with those of the mentally defective and it has been found that the size of an individual's brain bears no direct relation to his mental ability.

The brain is the focal point of the whole nervous system and acts in some ways like the capital of a great country. It is the seat of government. News from far and wide is hurried to it, orders are passed from it to the greatest and the least in the land, and, without it, all organization would fail and all law and order would collapse into anarchy. Our learning, thinking, remembering and behaviour all arise from the activity of the brain and so our ability and standard of performance in them depends upon the quality of the brain we are born with. This brings us right back to heredity.

There is evidence to show that our brains are the result of heredity in much the same way as our bodies. Just as some physical deformities run in families, so do some forms of mental defectiveness. The chances that intelligent parents will have intelligent children are the same as that tall parents will produce tall children. It is clear that mental development has strong links with heredity.

In any large number of unselected people you will find that the distribution of intelligence follows the usual bell-shaped normal distribution curve typical of other measurable physical qualities.

Thus by definition, near-average intelligence includes the great majority of people; only relatively few will be found outside the range of normality, either being of very high or very low intelligence.

Heredity sets the potential limits of mental capacity. Whether these limits are reached or not depends on environment. Genius is produced by the rare combination of chromozomes and genes to form a pattern of a particular kind. The chances of it happening to your child or mine are similar to the possibilities of our dealing to them, from half a pack of cards, all the aces and highest cards in the pack.

ENVIRONMENT AND MENTAL DEVELOPMENT

Just as the unborn child, during the months of pregnancy, exists and develops physically in the environment of his mother's womb and is affected by her health, so the child's mental development is affected by his pre-natal environment. It sometimes happens that a mother contracts a disease like German measles during the early months of pregnancy. With this particular disease there is danger that its effects in the mother will permanently damage the brain of the child. Unfortunate physical and mental effects upon children have likewise been traced to drugs taken by mothers during pregnancy. These are environmental effects.

After birth, the child's environment is immensely broadened and he is subjected to constantly changing physical, emotional and social experiences. These all influence his mental development. It has been shown that conditions of diet, sleep, health and social contacts all have an influence upon his mental development. These forces of environment may be favourable or adverse according as they feed or starve his mind with the necessities for proper growth.

Because, at birth, the child knows nothing, all his knowledge must be learned. Consequently, behaviour, which is the individual's response to learning, develops relatively slowly and uncertainly at first. Selection of the most agreeable forms of response is going on all the time. For example, a very young baby responds convulsively with his whole body to a sudden painful stimulus applied to any part of his body. A similar effect is found even in the adult upon whom a bucket of cold water is unexpectedly poured. His breathing stops momentarily and his whole body goes into tension. If the brain experiences such happenings frequently it learns to select the responses which are useful and eliminate those that are not. Thus the baby learns to withdraw only the hand when it is pricked instead of convulsing the body and the adult learns to control his response to the cold water. This is the technique of Indian fakirs who sleep on beds of nails.

The task of learning from experience is made easier if the same or similar experiences come frequently; and it is accomplished sooner if these experiences produce an intense response because then the matter of selecting the appropriate response becomes a matter of urgency.

Heredity determines the capacity for an individual's learning; environment enables him to attain these limits or fall short of them as the case may be. Many a genius dies undiscovered because environment has never given him the opportunity to develop his latent skills.

There is no reason to doubt, that among Eskimos, there are some who have the manual dexterity to become concert pianists or among the Bushmen of South West Africa there are some with the mental capacity to become famous nuclear physicists. The fact that they have not done so is due to the lack of environmental stimulus needed to develop and realize their latent talents.

Choice plays a part in mental development. Within limits, the individual can choose the kind of environmental stimuli by which he learns and the response which he makes to them. For example, a child chooses his playmates, the way he spends his leisure, the books he reads, the job he takes and so on. That his choice is limited by environment, there is no doubt, but it is also certain that his choice is not purely automatic and infallibly predictable.

MENTAL MATURATION

Although mental development is the product of learning, it nevertheless depends on the normal physical maturation of the brain and nervous system. Response to external stimuli is not possible until the receptors have grown sufficiently to do their job and the effectors have likewise developed. This primitive state is reached before birth, but a great deal of refinement of the motor processes and those parts of the brain that deal with intellectual activities such as learning, thinking and remembering must take place before the adult or mature state is reached.

The stages in this process of maturation make possible certain physical and mental achievements at various ages. For example, in the infant the process which causes the emptying of the bladder and the movement of the bowels is reflex at birth and not under conscious control. But most children by the age of two or three years have sufficient control over these activities to call upon them or delay them as required. This is not just training. It happens naturally in animals and would follow a similar pattern if human children were not trained. That this control is the result of maturation is further suggested by the fact that some mentally deficient children whose brains never mature, remain unable to control these 'natural calls' even when they grow up.

When maturation has prepared the physical and mental links for a particular activity, training produces the skill with comparative ease. Without maturation, no amount of training would succeed. Training simply determines how well the child performs what he is potentially capable of. It is as though maturation opens all the gates along the paths of the nervous system used for particular activities.

Another example of mental maturation is found in the readiness for speech found in children between the age of one and two. Before this stage is reached, the vocal organs are all complete; the links between them and the brain are also ready. What is lacking is the growth of associations in the mind between sounds and meaning. If deafness prevents the development of this association, the child will be dumb even though his vocal organs may be quite normal. But it has been shown by modern techniques in teaching the deaf and dumb that the potential control by this kind of child over his vocal organs is ready just as soon as the normal child. He can be taught to speak almost as soon and as well as the normal child as long as the barrier of his deafness can be overcome. However, no child can learn to speak until a certain degree of maturation in the associative parts of the brain has made this possible. Because of this, some mentally deficient people never learn to speak properly and children of low intelligence speak poorly.

Reading, which is the ability to interpret meaning from visual symbols, is a progression from the interpretation of what is observed in reality, to an understanding of meaning from symbols which of themselves bear no likeness to the original. This is not just a matter of training. Some children who are taught to read too early end up unable to read for meaning, although they can say the sounds. Sometimes, as a result of being forced into reading before they are ready, these children develop a lifelong aversion to reading.

For the teacher, the importance of all this lies in the realization that a child may be too young to be taught. To try to teach such a child is wasted effort. Indeed, the reaction on the child's part to premature teaching may make successful teaching more difficult later on.

Physical and mental maturation of the normal child are closely linked and it is unusual for one to proceed much more rapidly than the other. When this does happen, however, it is usually mental development that does not keep pace. This phenomenon produces people with adult physique but childish minds. The maturation of the normal child is shown diagrammatically in fig 15.

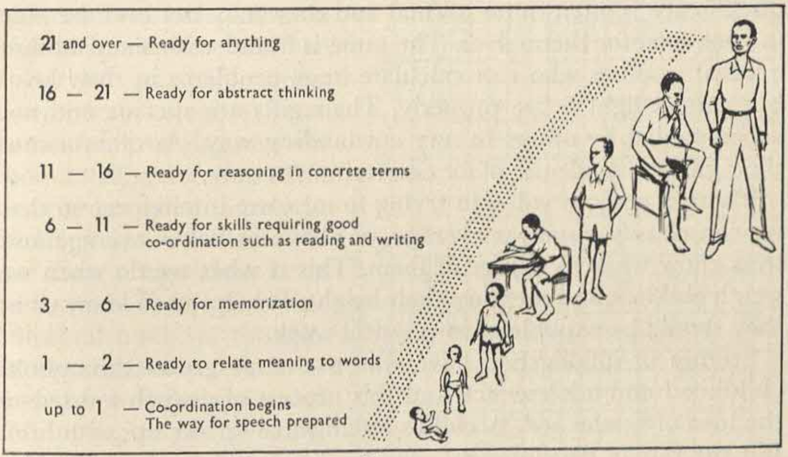

21 and over — Ready for anything
16 — 21 — Ready for abstract thinking
11 — 16 — Ready for reasoning in concrete terms
6 — 11 — Ready for skills requiring good co-ordination such as reading and writing
3 — 6 — Ready for memorization
1 — 2 — Ready to relate meaning to words
up to 1 — Co-ordination begins The way for speech prepared

Fig 15.

INTELLIGENCE

You probably have a good idea what you mean when you say that someone is *intelligent*; but you may find the greatest difficulty in trying to say what you mean by *intelligence*. Psychologists have had the same trouble and have had to resort to describing what it *can do* rather than saying what it *is*.

The definition of intelligence as 'the power to think' is inadequate because it fails to recognize the finer activities of thinking such as comprehension, reasoning, the ability to grasp relationships, select relevant data and draw generalizations from them. And so psychologists have found themselves forced in their definitions of intelligence to include more and more of the things that man's intellect can do. The result is that intelligence is now regarded as 'a fluid collection of infinitely varied thinking abilities and the measured intelligence of any individual depends on *which* thinking abilities are tested!' This is Professor P. E. Vernon's conclusion.

Intellectual superiority is the ability to out-think another person. This superiority may be general or it may be specific. For example there are some people with extraordinarily good memories who can remember who won football matches played years ago or who can repeat a row of more than fifty digits after only one look at them. If only memory was tested in finding their intelligence, they would be supermen. But in fact, their general intelligence is often quite normal and they may not even be able to cook food for themselves. The same is found with some mathematical geniuses who can calculate huge problems in their head but cannot light a fire properly. Their gifts are specific and not accompanied by others in any outstanding way. As often as not their gifts are made use of for entertainment only.

There is obvious value in trying to measure intelligence so that we can classify pupils as average, or above or below average and thus know what to expect of them. This is what we do when we weigh children and measure their height. It helps us to know what they should be capable of in physical work.

Studies of intelligence have shown that it grows throughout childhood and adolescence and this process of growth has led to the idea of '*mental age*'. A child's intelligence 'grows up' with him. But the rate of development may be different from his chronological increase in years. Thus a child of eight may be able to tackle mental activities which you would expect only of a ten-year-old. We say that this child has a mental age of ten although his chronological age is only eight.

The ratio of mental age to chronological age expressed as a percentage has come to be one of the most important figures in the study of children's intelligence. It is called the *intelligence quotient* or I.Q. This is the standard rating for recording intelligence. Thus a child of eight with a mental age of ten turns out to have an I.Q. of 125 found thus:

$$\frac{\text{Mental age}}{\text{Chronological age}} \times 100$$
$$= \frac{10}{8} \times 100$$
$$= 125$$

It should be obvious that a child with the same mental age and chronological age will have an I.Q. of 100. This is average intelligence. A good intelligence test, if applied to a large number of people, will give a distribution curve like that in fig 16. The most intelligent and least intelligent are shaded black. Those who are near average are unshaded and those who are rather above or below average are shaded. But the critical question always is 'What is a good intelligence test?'

For the past fifty years or so, psychologists have been trying to improve on their intelligence tests. The trouble has been largely in deciding what quantities to test. Sets of questions have been made to test those intellectual qualities thought to be significant, such as size of vocabulary and ability to use it, memory, ability to see relationships, reason and comprehend. Questions on these are given as an initial test and all the questions that prove to be ambiguous, too easy, too difficult or not sufficiently discerning are cut

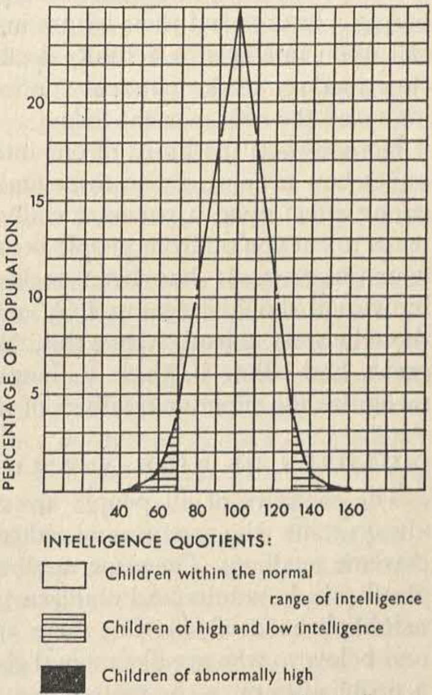


Fig 16

out and others put in to replace them. The modified test is then sent to a large group of people and marked. If it has been a good test and the people tested have been a good representative cross-section of the population, the distribution of scores will form a normal distribution curve. From this curve the I.Q. of a person can be calculated from his score in the same test.

Like other physical qualities, intelligence is influenced by both heredity and environment. It is affected by our state of health and emotional balance. But the most potent factor of environment is the amount the intelligence is used. Thus the rule of strength through exercise which applies to the physical body also applies to the mind. Those children who grow up in homes where the mind is stimulated develop mentally more than those from homes where there is no incentive to mental exercise. Likewise, those adults who take up jobs or cultural pursuits that constantly exercise the intellect maintain their standards of intelligence achieved in youth, whereas those who spend their lives in routine, boring jobs or spend their leisure in ways which make little or no call upon intelligence actually decline in intelligence. There is a close analogy in the physical contrast between the strong, active man and the soft, over-fat fellow.

Heredity sets the limits of our intelligence; environment determines how near we get to these limits. But intelligence also has a strong effect upon a person socially. Extremely high intelligence tends to cut you off from people because they cannot follow you in your interests. It has been reckoned that for leadership, an individual should have an I.Q. of about thirty points ahead of those he seeks to lead. Above this, the intellectual gap becomes too great, and below it, there is danger that the followers will not recognize the superior qualities of the leader.

CHILDREN OF HIGH AND LOW INTELLIGENCE

The majority of all people are normal in size, but there are always some who are unusual either because of their great size or extreme smallness. The same applies to intelligence. The majority of all people, adults and children included, have an I.Q. in the neighbourhood of 100. But there are minority groups above 130 and below 70 who are like mental giants and dwarfs. These present a problem both to themselves and society and, as children, they should be of concern to the teacher.

The use of the term *mental age* can be misleading. Even when a child of nine can do the intellectual activities of a twelve-year-old, he is not just like an average twelve-year-old. He does not have the experience of the older child. On the other hand he is much more creative and imaginative than the average twelve-year-old. To say that mentally he is like a boy of twelve is like saying of a boy only fourteen years old who has grown unusually tall that he is a man. He is not; his proportions are all different and his strength is not the same. He is still an adolescent and probably lacks the growth of hair on his body that marks manliness. So the teacher must be careful to remember when dealing with a child who is intellectually far advanced for his age, that he is not the same as an average child of older years but needs special attention. The same of course applies to a child of very low intelligence.

Highly gifted children should be nurtured because they could become the most valuable leaders in society and are the kind of people whose intellect refreshes civilization and pushes outwards the frontiers of knowledge. The fact that so few do become leaders and so few do improve the culture of our civilization is a dark reflection upon our schools and society which have too often regarded the spirit of such youngsters, like that of the wild horse, as something to be broken before it can be used. Teaching such children demands special attention from the teacher to encourage and draw upon their talents and feed their appetites for fresh intellectual conquests.

The mentally dull child presents a challenge of another kind to the teacher. The sense of inferiority that such a child suffers from at school, as he finds himself constantly overshadowed by the abilities of the other children, can fundamentally affect his character. In ordinary life, differences in intelligence do not appear in such vivid relief as they do in school and so the teacher should concentrate on what the child *can* do rather than constantly burden him with what he *cannot* do. No one would dream of making a dwarf a labourer, but many teachers give the mentally dull child the same mental burdens to carry as the normal child. Instead, teachers should provide special light work for such children and turn their effort to helping them live well rather than learn well. Teachers should give the same kind of attention to these children as they do to the physically handicapped. Mental handicaps are not the fault of the child, but result from pre-natal disorders, birth injuries and disease. The sympathetic teacher can help such children to play a useful part in the community and help to prevent them from sinking, as so many do, into a life of delinquency and degradation.

Section B

MATURATION AND MENTAL DEVOLOPMENT

1. Compare the reaction time of different students by finding out which of them can succeed in the following test:

Cut two sticks, one 36 in. long and the other 24 in. long and place them as shown in fig 17. The subject rests his hand, palm downwards with fingers touching the end of the horizontal stick. The aim is for him to catch a coin dropped by the tester whose hand is resting on top of the vertically positioned stick.

The actual reaction time of each can be more closely studied if the vertical stick is cut shorter by an inch for all those who succeed in the first test. The person with the quickest reaction time will be the one who survives most attempts with the stick being progressively shortened.

What effect do you find if the tester holds two coins, one silver and the other copper and asks the subject to attempt to catch only the copper coin? The tester drops only one coin at a time and does not announce which coin he intends to drop. Notice this latter test requires the subject to make a choice before acting. The former requires no choice.

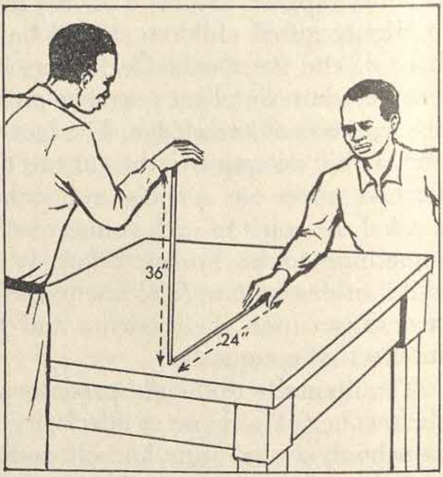


Fig 17

2. Discuss the advantages and disadvantages of behaviour that can be carried on independently of the conscious mind and also that which requires conscious control. Give examples of each kind of behaviour.

3. Make as full a list as possible of the abilities of children at each stage of their development. Compile your list from a study of children of different ages, not from books about children. Con-

centrate particularly on the years of childhood which cover the period in which children are in primary school.

4. Note down as many talents or skills as you can which you recognize as being similar to those possessed by:

(a) your father or grandfather
(b) your mother or grandmother

Which of your gifts do you think have been most influenced by environment?

5. Try to describe the ideal environment for mature mental development in your part of the world.

6. What steps might be taken by schools to ensure that geniuses are not lost to society?

7. Test the language maturity of children of different ages in the following way:

(a) Collect a group of children varying in age from two to twelve years.
(b) Converse with each of them in turn for a few minutes in their own vernacular. It will help if you can record these conversations.
(c) Get another student to help you by counting the number of words they use in each sentence. This is where a recording will be of great help. Find the average number of words per sentence and also the number in their longest sentence.
(d) From the results of your tests, at what age do you see the most rapid increase in language skill as evidenced by increase in length and character of sentences used?

Note that this test, because of the small number of children examined, does not give sufficient material for drawing reliable conclusions, but it should point to the pattern that a bigger and more accurate test would obtain.

8. Try the following experiment to find the time taken to teach children of different ages to read:

(a) Make flash cards of the words shown in fig 18 [but write them in the vernacular].

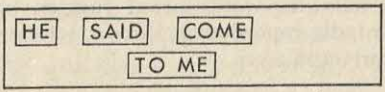


Fig 18

(b) Select a group of children ranging in age from two to eight years who have had no kind of schooling.
(c) Teach each of them to recognize and say the words on the flash cards and time how long this process takes for each. This recognition must be correctly done three times with the words shown in random order

before the child can be reckoned to have learned to read them. Some of the children will fail to do this.

(d) Now ask each of those who have succeeded in the first part of the test to place the cards in a row and read the sentences they make. Note how many sentences they can form and read correctly.

(e) What was the age of the youngest child who learned to read? What was the age of the quickest child? At what age does the speed of learning to read show its most rapid improvement?

INTELLIGENGE

1. The following is a list of some of the main intellectual activities of which the brain is capable, and examples of the kind of questions which are used in intelligence tests to test these abilities. In each case (a) is for an average child of six years of age and (b) is for an average adult. But do not think that because you cannot answer some that you are mentally subnormal. Intelligence tests consist of many questions. They never depend on a single one.

Memory

(a) 'I am going to say some numbers and when I have finished I want you to repeat them just as I do. Listen carefully and get them just right.'

3–1–8–5–9   4–8–3–7–2   9–6–1–8–3

The child should get at least one series of numbers correct.

(b) 'Now listen and be sure to say exactly what I say.'

(i) The red-headed woodpeckers made a terrible fuss as they tried to drive the young away from the nest.

(ii) The early settlers had little idea of the great changes that were to take place in their country.

One sentence completely correct is required to score.

Language Skill

(a) 'What do the following words mean? Orange, envelope, straw, puddle, tap, gown, eyelash.'

Five must be correct to score.

(b) 'What do the following words mean? Juggler, brunette, peculiarity, priceless, regard, disproportionate, shrewd, tolerate, stave, lotus.'

Six must be correct to score.

Seeing Relationships

(a) 'What is the difference between . . .

(i) A bird and a dog?

(ii) A slipper and a boot?

(iii) Wood and glass?'

Two must be correct.

(b) 'What is the principal difference between . . .
  (i) Work and Play?
  (ii) Ability and achievement?
  (iii) Optimist and pessimist?'
  Two must be correct.

Comprehension

(a) 'What do we do with our eyes?'
  'What do we do with our ears?'
  Both must be correct to score.
(b) 'What do the following proverbs mean?
  (i) We only know the worth of water when the well is dry.
  (ii) No wind can do him good who steers to no port.
  (iii) Don't judge a book by its cover.'
  Two must be explained satisfactorily.

Reasoning

(a) None.
(b) 'My house was burgled last Saturday. I was at home all the morning but out during the afternoon until 5 o'clock. My father left the house at 3 o'clock and my brother was there until 4. At what time did the burglary take place?'
  Correct explanation scores.

Ingenuity

(a) None.
(b) (i) 'A mother sent her boy to the river to bring back exactly 2 pints of water. She gave him a 5-pint can and a 3-pint can. Show how the boy can measure out exactly 2 pints using nothing but the two cans. Begin by filling the 5-pint can first.'
  (ii) 'Do the same with a 9-pint can and a 5-pint can to get 13 pints. Begin by filling the 9-pint can.'
  (iii) 'Do the same with a 3-pint can and an 8-pint can to get 1 pint. Begin by filling the 3-pint can.'
  Two must be correct to score.

Other mental skills which may be measured include critical appraisal, thinking quickly, learning quickly, abstract thinking, reconciliation of opposites, flexibility of mind, ability to solve problems, originality of thought and power of expression.

You may like to obtain intelligence tests for further study. You should contact your nearest Institute of Education for information. You might also like to try to make up questions which really do test these mental qualities.

2. Intelligence tests as used for selection for secondary schools, the army and so forth, are a kind of *aptitude* test. The mental qualities that are thought to be most vital for success are the ones tested. On the same basis, choose from the list above the mental qualities you would test for entry into the following institutions or professions:

A primary school
A secondary school
A university
Teaching
Trading
Mining
Administration
Politics
Flying

3. Discuss the importance of intelligence in the everyday life of the ordinary man.

4. From a study of fig 16 on page 63 find the proportion of the population within the following ranges of intelligence.

Below 50
50–70
70–90
90–110
110–130
130–150
over 150

CHILDREN OF HIGH AND LOW INTELLIGENCE

1. Study the characteristics listed below which are typical of children of very high intelligence:

(a) Quick to grasp situations and learn new material.
(b) Show originality and initiative in their thinking and actions.
(c) Concentrate on interesting work well and for lengthy periods. Restless unless their capabilities are taxed.
(d) Skilful in logical argument, critical judgement and abstract thought. Have a good command of language.
(e) Usually can be relied on. Usually eager and co-operative.
(f) Have good co-ordination.

2. Study the characteristics listed below which are typical of children who are dull because they are of low intelligence:

(a) Slow to understand and learn. Respond poorly to learning material. Show little interest.
(b) Backward in speech and vocabulary. Have difficulty in expressing themselves.
(c) Lacking in initiative and independence. Usually apathetic. Prefer to copy others.

(d) Do not have much power of concentration and then only for brief periods. Little evidence of persistence.
(e) Content to take instructions from the teacher. Contribute very little to the class.
(f) Unadaptable to new problems, new situations and new people.
(g) Lacking in well co-ordinated muscular control.

3. Discuss the problems which face children who are either of very high or very low intelligence and how they can be helped to find school a happy, helpful place. Discuss also what the school can do to prepare them for life after they leave school.

For Further Reading

TERMAN and MERRILL	*Measuring Intelligence.*	Harrap.
G. W. PARKYN.	*Children of High Intelligence.*	New Zealand Council for Educational Research.
CHESHIRE EDUC. COMM.	*The Education of Dull Children.*	University of London Press.
K. LOVELL.	*Educational Psychology and Children.*	University of London Press.

4. THE DEVELOPMENT OF PERSONALITY

Section A

ABOUT PERSONALITY

AT birth, it is impossible to say what kind of personality a child is going to have, but that is not to say that he is without personality. In many ways the growth of personality is like the growth of intelligence. At birth the raw materials are there through heredity, but they can hardly find expression because of the physical limitations of the child both in respect to his body and his environment. Only as maturation progresses and environment has its effect does personality become clearly apparent.

Nevertheless mothers are keenly aware of the differences between their children even at a very early age. One child may be vigorous and active from birth, squawking loudly, kicking strongly and sucking tenaciously. Another may be placid, lying quietly when left, and feeding with notable indifference. As children grow older the differences between them become more numerous and more obvious until, as adults, they become the complicated creatures that make you seem odd to me and me rather peculiar to you.

Personality is the projection of ourselves to others. It is not what we think ourselves to be like, but ourselves as others see us. Like the other physical and mental qualities that we have already considered, personality is the product of heredity and environment. Although personality is the product of a great many characteristics or '*traits*', it is possible to classify it into two main types, namely '*introvert*' and '*extrovert*'. But they are not groupings with clear-cut lines of demarcation. Rather they are like the scale of intelligence where people may be classified as above or below average, but the great majority are near average. Thus half the population may be classed as introvert and half as extrovert but the great majority lie close to the dividing line.

The characteristics of the introvert are reflected in his preference for and his greater satisfaction in the world within him. To this world he retreats when difficulties arise, thus giving a stoic outward appearance. His actions are cautious and he does not like situations where he is in danger of losing control of himself and where he may become the centre of interest. In fact he is shy.

The extrovert on the other hand prefers the world outside himself and is constantly reaching out for new links with people and things. His behaviour has the appearance of being much more superficial and fluid, but socially his company is enjoyed because he is full of life and energy. He likes to be the centre of attraction.

Extremes of these types occur, the highly introverted being liable to melancholy and deep depression and being the type most likely to commit suicide, and the extreme extrovert being the 'hail-fellow-well-met' type or the aggressive personality always keen on an argument or looking for a fight. But these extremes are exceptional. The vast majority of people seek either the quiet life of the moderate introvert or the eventful life of the moderate extrovert.

Many people have noted that personality is linked with a person's build or physique. For example there is the jolly type of man with rolls of fat on his face and body. In contrast to him there is the tall, thin, bony type of man who is more solemn and austere. Or there is the athletic type whose powerful frame is all muscle and power. Each of these reflects a different kind of personality. But even these fit into the two-fold category of introverts and extroverts (see fig 19).

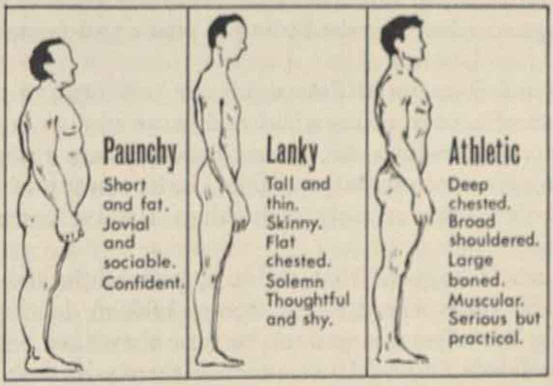

Paunchy
Short and fat. Jovial and sociable. Confident.
Lanky
Tall and thin. Skinny. Flat chested. Solemn Thoughtful and shy.
Athletic
Deep chested. Broad shouldered. Large boned. Muscular. Serious but practical.

Fig 19. Personality and physique

These characteristics, so far described, are linked with glandular activity in the body, but these are in turn influenced by our heredity. Thus we see that heredity provides us with the framework upon which our full personality will grow in response to our contact with people and experience. This contact affects us in two ways, namely, emotionally and socially, and it is these responses which together make up our personality.

EMOTIONAL DEVELOPMENT

When a child is born, it emerges from the relatively stable environment of the womb into the world of stress and strife. Fortunately for most of us, the introduction is not too sudden, because we enjoy the intimate care and nursing of our mother before we are subjected to the less comfortable and less secure conditions of normal child life. The more independent we become, the more varied and unstable becomes our environment.

We mentioned, when considering the innate tendencies of man, his various physical and emotional needs. For normal development, a child must enjoy security and love. Lack of security breeds anxiety and fear, whereas the conditions of security and love give rise to contentment and happiness. Forces which disrupt or prevent love become objects for anger and hate.

Our mother is probably the first person to provide us with the security and love we need, so we grow to love her. The intimate relationship gradually widens to include the rest of the family and our closest friends. We feel happy and contented in their presence and so we love them. But fear and anxiety are born of insecurity and are roused whenever the feeling of peace and contentment is upset.

Sudden noises or unfamiliar sights are sufficient to upset the stable state of a very young child and cause him to cry in fear. Later, situations which he, through experience, recognizes as dangerous, give rise to anxiety and fear. Under conditions of normal emotional development, only such things as these cause anxiety and fear.

Sometimes it happens that children, and adults too, develop unreasonable fears. For example, some children develop a deep and lasting fear of certain animals because they have been taught by older children and adults to associate them with fear.

Natural fear and anxiety are beneficial, because they help to protect us by producing activity, which either removes us from the source of danger, or eliminates the cause itself. Thus at first, a child's fear of lorries on the road may make him flee into the bush, but later he eliminates their danger by always walking at the edge of the road. But unnatural fears are bad because they arouse the same emotional response although they cannot be dealt with in the same way. For example, a chameleon is not a dangerous animal, but many people have a great fear of it. And so, although it is possible to overcome fear of dogs by making friends with them and thus realizing that they do not all bite, it is not so easy to overcome the fear of the chameleon because there is no physical danger from it to overcome. The individual is frustrated in his efforts to get rid of his fears and this only makes things worse.

Anger is a natural response to frustration and is good in its rightful place. Likewise, hate should be an emotional response to things which rightly anger us, but when it is turned towards objects or people unjustly, it indicates there is something the matter with us.

If allowed to develop freely, emotional development produces a pattern of attitudes to people and situations. Thus we say 'so and so makes me see red'. By this we mean that in the past, so and so has angered us several times and now we have developed an attitude of anger towards him. Similarly with fears; it may be that in the past, we were made afraid by the sudden noise that thunder makes and we formed the habit of being afraid of thunder. These attitudes of anger and fear are habits of reaction and their development is at the root of all emotional life.

If we want to get to the root of unnatural fears, or anger or love for that matter, we must go back to the origin and deal with that. To cover up or ignore it, or deal just with the superficial symptoms, is like taking a laxative to deal with worms. It does not rid us of the root of the trouble, it only makes things worse. For a cure to be effected, there must be a readjustment of the attitudes and habits.

The importance of an understanding of emotional development so far as the teacher is concerned is that he should recognize that all the children in his class are not alike. The effect of a rebuke on a shy or sensitive child is quite different from that on a bold, confident child. He should also see the importance of the school as a factor in shaping the child's emotional growth. He should constantly be seeking to overcome the unnatural qualities of any child's emotional life and to establish sound emotional habits of response which produce kind, confident, happy and well-adjusted children.

THE EFFECT OF SOCIETY

Nationalism, colour bar, snobbery and juvenile delinquency are all acknowledgements of the effect of social environment on behaviour and the development of personality. We speak of the temperamental qualities of the 'Latin races', the unemotional character of the 'Anglo-Saxons', the bustling 'American' and the unemotional Chinese. These so-called national characteristics are not inherited; they are the result of social environment.

Social development, like emotional development, is the story of the learning of attitudes and the formation of habits of response. Our first social responses are to our parents and the other members of our family, then through our wider circle of friends and relatives to the people of our community, our religion, our nation and continent. The outcome of how we feel towards other people is how we have been taught to feel by direct or indirect means.

At birth, the child knows nobody. He is capable of developing just as warm a relationship of love to a foster mother as he would to his real mother. But within a few months he has begun to pick out individuals in the household who are familiar and who are associated in his mind with food and comfort. Soon he becomes aware not only of how people behave towards him, but of how they behave towards each other. He grows up in a social environment which has a fairly uniform pattern of behaviour amongst its members, because they adhere to certain principles and standards of conduct, etiquette and custom. So long as these are the only standards which he has an opportunity to see or experience, he is very likely to accept them as his own.

At a fairly early age, however, the child will begin making close friends outside the family. The values held by this group may be different in detail from those of his own family, and so he dresses like his friends, likes their music, entertainments and amusements and in fact becomes one of their group. The values and standards which control the behaviour of any individual are always those of the people who most attract him or with whom he chooses to ally himself most closely.

Ethical and other values are always in greatest flux in a society whose structure is undergoing change. In Africa this is happening with the loosening of the holds of tribalism and the constant draw of the cities. These cities gather a population with weakened home ties. They offer the opportunity for the forging of new social groups. This is at once the strength and weakness of the cities socially. It is unfortunate that the rising figures of crime and juvenile delinquency in cities indicate that the weakness is developing more rapidly than the strength. For children brought up in such an adverse environment, the social handicaps are severe.

Social environment is a powerful force for developing the attitudes, views, opinions, and beliefs of the individual. The strength of his standards in these depends entirely on how firmly they have become established as habits. The more deeply they become entrenched as habits, the longer they are likely to persist and the more resistant they will be to counter social pressures.

CHILD TRAINING

You have already learned that every form of behaviour in the child, apart from reflexes, has to be learned. This is true of physical and mental skills; it is also true of social behaviour. Child training is the process used to teach children what the adult world regards as desirable social behaviour.

There are two main schools of thought concerning child training. The first is the *permissive* school and the other the *authoritarian* school. Each stems from a fundamentally different concept as to the nature of the child. The permissive school regards the child as naturally good and misbehaviour as the result of adverse environmental factors. Thus the approach to child training in the permissive school is to tackle the environment rather than the child, in the belief that if the environment is good the child will be good. The analogy of the gardener watering, weeding and cultivating his plants is often used.

The authoritarian school on the other hand starts from the position that the child is not naturally good, that he needs to be moulded and made to conform to behaviour which does not come naturally to him. In the view of the authoritarian school, acceptable social behaviour is brought about by establishing habits and these habits are most efficiently taught by the use of punishments to inhibit undesirable habits and rewards to encourage those which are desirable.

But in their extreme forms, both schools have been responsible for badly maladjusted children. Unbridled freedom without any check on the activities of children produces hooligans and is a contributing factor to juvenile delinquency. At the same time, brutal methods of punishment administered in the name of child training may give rise to all kinds of behaviour trouble such as rebellion, bullying or extreme timidity.

The fact is that children are human. They do not simply respond in a passive way as plants do to their environment. They *react*. Nor are they moulded in a neutral manner like metal under the blacksmith's hammer. They *react*. In fact the whole aim of child training must be to get a good reaction.

The key to getting a good reaction is to have a good human relationship with the child and the secret of a good human relationship is genuine love. Without love, child training becomes an impersonal process of 'do-as-you-like and suffer the consequences' with one school and frenzied orgies of angry beatings with the other.

If child training is such a problem you may well ask 'What is the need for it?' The simple answer is that society needs it. Society depends on the ordered state of all its members. If the members of society become disorderly, then society itself disintegrates. The keystones of society are *authority* and *obedience*, for society consists of rulers on the one hand and ruled on the other. If those who are governed refuse to obey the authority of those who rule, anarchy results. Therefore the main aim of child training must be to teach the child the relationship of authority and obedience and how to co-operate in the orderly development of the society to which he belongs.

How is this done? The answer is that it is learned by doing. It is the old truth of practice making perfect. That is why it is called training. It is an active process in which both the child and the parent or teacher participate. But the relationship between the two must be one of love and respect because the very process of child training must put into practice the principles of a well-ordered society, namely the relationship of love and respect between rulers and ruled. That is how it is possible to punish in love and why it can be more cruel to refuse to cause pain than to give it for correction. For example, if the surgeon knows that the only hope for the cure of his patient is an extensive and painful operation, he does not deny the patient the cure for fear of inflicting pain. He resolutely and in mercy treats the patient as necessary to bring about his ultimate cure.

This must be the principle of all child training; to do whatever is necessary in love to bring about harmony between the child and the society to which he belongs.

RELIGION AND SOCIETY

Religion takes its place in the context of the social pressures that influence personality because it is the force which has most influenced the character of mankind. Our ethical standards, our moral behaviour and our standards of judgement are the product of our religious training both direct and indirect. Any education, which attempts to train children while excluding religion, starts in a crippled state. Far from being a drug to pacify people, religion is the cohesive force behind any sound society. It gives to people purpose for their efforts and standards by which to assess the value of achievements or the quality of behaviour.

Most religions have two forms of teaching—the *divine revelations* and the *traditions*. The latter consist of the compiled records of the fathers of the faith and what they had to say on matters of custom, manners, law and observances. But the divine revelations, where they truly are from God, are not subject to the changes that new conditions demand of the traditions of the fathers. They are timeless principles. They are not *relative* truths, but *absolute*. The divine revelations are not the ethical demands of society for a way of life thought to be expedient by the fathers. They are the pattern of life required by the Creator of his creatures. They are not what men, the users, have discovered to be the best recipe for the cake-mix of life but are the Maker's instructions printed on the packet which, if followed, will guarantee success.

Teachers have a responsibility to teach the relevance of religion to life, to encourage an understanding of and an obedience to God's laws for behaviour and to point their children to God so that godliness becomes one of the traits of their personality.

Section B

PERSONALITY

1. Make as full a list as possible of the characteristics of the introvert and the extrovert, then decide into which category you fall. Do the same with your fellow students. Note how many are clearly one or the other, and how many are difficult to determine because they are near the borderline.

2. Discuss the differences in treatment that would be appropriate for a teacher when dealing with the school work and misbehaviour of:

(a) Introvert Children.
(b) Extrovert Children.

3. What evidence from observation have you to support the links between personality and physique suggested on page 73 and in fig 19?

4. What kind of friends do introverts make and what kind do extroverts choose? Study your own circle of friends and those of a schoolchild who is clearly one of the two types of personality and note whether the friends are predominantly of the same type or opposite. Discuss the value of your findings in relation to group activities in school.

EMOTIONAL DEVOLOPMENT

1. Make a list of what you believe to be the main needs of a primary schoolchild. Include physiological, mental, emotional and social needs. Discuss why these are needs and how they can best be met.

2. Hold a group discussion on the subject of fear. Cover the following points:

(a) What fears are common among children? Include recollections of fears experienced by members of the group in childhood.
(b) What are the symptoms of fear? Discuss not only the obvious symptoms like running away, but also the more subtle reactions that may only be recognized by someone who knows you well.
(c) What are the causes of fear? Include the causes of both natural and unnatural fears.

(d) How can fears best be dealt with? Consider the methods of 'explaining away' fear and the methods of increasing love and security. Deal particularly with fears which are common amongst schoolchildren, such as those found amongst infants on their first day at school, or those amongst older children approaching adolescence.

3. Make a case study of a child who suffers from any unnatural fear. Find out the root cause and suggest what action might be taken to help cure the child of his fear.

4. Carry out the following experiment to examine the effects of anxiety on learning:

(a) Make up mental arithmetic questions for giving as a test to a class of children. The questions should vary in difficulty, but avoid making more than one or two either too easy or too difficult.
(b) When administering the test, give each child a sheet of paper and instruct him to write nothing on it except the answers. All working has to be done mentally.
(c) At the end, collect the papers. Mark them but do not inform the children of the results. Select the names of the children with the two best papers, the two worst and two with average scores.
(d) About one week later, ask these six children to come to an interview in connexion with the test. See each child privately. Say to him that you were dissatisfied with his results in the test given the previous week and that you are going to give it to him again. This time he must do it much better and much more quickly.
(e) Give the test to each child at the end of his interview. Urge him to achieve speed and accuracy.
(f) Mark the papers and, before dismissing the children, tell them all that you are pleased with the improvement shown.
(g) Study the marks obtained in the second test and compare them with those obtained the first time by the same children. Have they improved or got worse? Who have changed most, the children who did best the first time or those who did worst?
(h) Draw conclusions from the experiment as to the effects of anxiety on improving work or inhibiting performance.

5. Discuss the beneficial effects of fear and anxiety and suggest ways in which the teacher might use them to improve learning amongst his children. But keep in mind the dangers of creating a continuing state of fear or an anxiety state because the effects of these can only be harmful.

6. Consider the effects of uncontrolled anger upon:

(a) The person who gets angry
(b) The person he gets angry with
(c) Other observers

and decide who benefits most and who benefits least from it. Follow this up with a discussion on the value of self-control in relation to anger and bad temper and how the teacher can help to achieve this control.

7. Examine the nature of any strong dislikes or hates that you have. Try to find how the hate grew and whether it is reasonable or unreasonable.

Generalize your conclusions in a discussion on the hate sentiments of certain people towards the following:

(a) People of a differing tribe or race or social class.
(b) People of a differing religion or political party.
(c) Policemen.
(d) Schoolteachers.
(e) Parents.
(f) Certain animals like snakes or chameleons.
(g) War and violence.
(h) Corporal punishment.
(i) Certain school subjects.
(j) Flying.
(k) Sailing.
(i) Thunder and lightning.
(m) Modern art.
(n) Certain kinds of music.
(o) Certain foods.
(p) Certain sounds.
(q) Certain smells.

8. Make a list of the social and economic factors which make people feel insecure. Discuss which are the most important because they allow little room for readjustment and which are of less importance because people can readjust themselves to them more easily.

9. To what extent is security good for a child, and how much does he need insecurity to develop personality, independence, and character?

THE EFFECT OF SOCIETY

1. Discuss the differences you have noticed in the emotional and social development of children which you believe result from different forms of upbringing? Two contrasting lists of home environment are given below:

LIST A	LIST B
Brought up by own parents.	Brought up by relatives.
Brought up in monogamous home.	Brought up in a polygamous home.
Brought up in a united family.	Brought up by a divorced parent.
Brought up in a happy home.	Brought up in a quarrelsome home.
Brought up in a wealthy home.	Brought up in a poor home.
Brought up by educated parents.	Brought up by illiterate parents.
Brought up in a religious home.	Brought up in an irreligious home.
Brought up as one of a large family.	Brought up as an only child.
Brought up in towns.	Brought up in rural areas.
Brought up as the eldest of the family.	Brought up as the youngest in the family.

2. Analyse the origin of the loyalties people feel towards the following:

(a) Their family.
(b) Their tribe.
(c) Their nation.
(d) Their profession.
(e) Their religion.

3. Compare some of the social customs of your tribe with those of another and try to explain why you think yours more suited to your people than others. Do you think these customs are still appropriate to the life of your people today? Here is a list of customs:

Greetings.
Dress.
Hospitality.
Food.
Veneration of old age.
Initiation.
Choosing a marriage partner.
Marriage ceremonies.
Birth.
Death.

4. The influence of the various people listed below varies in power during the stages of a child's life from infancy, through childhood, adolescence and youth to adulthood. Discuss which are usually the three most influential in developing the social attitudes we hold at each stage of growing up.

Mother.
Father.
Brothers and sisters.
Relatives.
Friends of the same age.
Teachers.
Film stars and characters in books, etc.
Religious leaders.
People in the same job.
Newspapers and radio.

5. From what you have learned of the influence of the group upon the social development of the individual, what lessons would

you draw out of it that would help you as a teacher to deal with the misfit child in school?

CHILD TRAINING

1. Select from the list below those qualities you would like to see in your children and those you would want to correct if they developed. Enlarge the list by giving the opposites of all the qualities listed.

Respect for seniors.
Obedience to authority.
Rudeness.
Courage.
Boastfulness.
Dishonesty.
Laziness.
Restlessness and noisiness.
Selfishness.
Helpfulness.
Naughtiness.
Truthfulness.
Cruelty.
Good manners.
Rebelliousness.
Good sportsmanship.
Secretiveness towards parents.
Destructiveness.
Self-control.
Self-reliance.

Discuss how the desirable qualities can be encouraged and how the undesirable ones can be discouraged.

2. Read the following passages and answer the questions at the end.

> 'Juvenile delinquents are victims in a very real sense. They are victims of a society which has substituted indulgence for discipline. They are the victims of a breakdown of authority and moral standards in the home, in the neighbourhood and, too frequently, in the entire community. And they are the victims of those practitioners of expediency who have blurred the line between right and wrong, good and evil.'
>
> J. E. HOOVER,
> Director of Federal Bureau of Investigation.

Here is how you can rear a delinquent child:

(a) By giving him from infancy everything he wants so that he grows up to believe the world owes him a living.
(b) By just laughing at him when he begins to use bad language.
(c) By giving him no spiritual training and letting him decide for himself about religion when he is grown up.
(d) By never rebuking him so that he never learns the difference between right and wrong.
(e) By doing everything for him so that he learns to wait for others to carry his responsibility.
(f) By letting him read anything he likes however bad it may be for his mind.

(g) By making his home a quarrelsome one in which the members of the family lack love.
(h) By giving him all the money he asks for and never making him earn his own.
(i) By giving him all the food, drink and pleasures he wants and letting him do whatever he pleases for fear of frustrating him.
(j) By refusing to believe anything bad about him despite complaints by neighbours, teachers and policemen.
(k) By excusing yourself from responsibility when he does get into serious trouble.

Adapted from an article by the Houston Police.

Questions:

(a) What are the origins of delinquency as indicated by the articles above? What other factors produce it? Make as complete a list as you can.
(b) In what ways can self-control be developed and standards of morality be taught? Refer to the effects of example, precept, rewards and punishments.
(c) What are the dangers of indulgence and permissiveness as a form of training, and what of excessively strict authoritarianism and punishment? What assumptions do they make of human nature?

3. Make a list of rewards and punishments that you think would be suitable for child training.

4. Discuss or debate the following assertions:

(a) 'Children, like animals, must be trained, and by similar methods, if they are to obey and perform the repertoire expected of them.'
(b) 'Corporal punishment is bestial, inhuman, brutal, unreasonable, absurd, useless and harmful.'
(c) 'Punishment and love are essential partners in child training and they are completely reconcilable in the person who seeks the highest good for a child.'

5. Collect passages from the Holy Scriptures which deal with child training.

6. Make a study of a child who is considered 'difficult' at school and one who is described as a 'good' or 'model' pupil. Examine the methods used in their training at home.

RELIGION AND SOCIETY

1. Answer the following questions in discussion:

(a) What practices in your religion are ordered by 'divine revelation' and what by the 'traditions'? Do you give equal weight to both sets of teaching?

(b) What relevance has religious teaching given long ago got for our contemporary world? Does it still affect your social life or do your social experiences tend to modify your religious views?
(c) What explanation would you give for the rejection of your religion by the many who do not follow it?
(d) What social effects has the practice of your religion had on the world during the centuries of its existence?
(e) If the ethical standards demanded in the Holy Scriptures are the demands of God, is there any evidence today to show that men are suffering for not keeping them?
(f) How is a society that is materialist and prepared to accept only what it can see and touch, or measure and weigh, entitled to teach that religion is the creation of man and God the projection of man himself?

For Further Reading

See the books listed on page 34.

Part 2

LEARNING

5. PRINCIPLES OF LEARNING

Section A

ABOUT LEARNING

WHEN a baby is born he knows absolutely nothing. All knowledge is gathered after birth. Some of what he learns will come incidentally, such as the knowledge that being warm is more pleasant than being cold. Some will be learned consciously, for example when he goes off to find out what is making the interesting noise outside. Both of these kinds of learning, unconscious or *casual* and conscious or *deliberate*, play a part in everyday life and they also are the kinds that the school should provide.

Casual learning results from the experience of our environment and needs no effort. It just happens. Some psychologists believe that it explains all the so-called innate tendencies of man and the natural talents of individuals. Certainly these characteristics could not reveal themselves apart from our conscious appreciation of our environment, though it is probably going too far to say that they are born of environment.

Deliberate learning, on the other hand, does not just happen. It is caused, or as psychologists say, it is *motivated*. Casual learning is like a piece of driftwood swept down by a river. Its experiences result from the haphazard interplay of the river currents and the river bed and its banks. Deliberate learning results, however, only when you direct your learning along definite, planned channels.

Some of the things you learn, you forget very quickly. Others make a deep and unforgettable impression. The depth of learning depends upon the total effect of the experience upon you. For example, it does not make much difference to you whether it was last Wednesday (or was it Thursday?) that a further earth satellite was launched by the Americans. But you do remember well the day last year when your employer did not pay you.

Learning is directly proportional to the force of the experience that causes it. This leads to the definition of what learning is: it is any change in behaviour that is due to experience. Thus we demonstrate a lesson learned every time we put up an umbrella when it rains, or give up hope when it comes time for the arithmetic exam.

At birth, although we know nothing, our tiny body is wonderfully prepared for learning. All our senses are working and we can respond to our environment with a repertoire of reflex behaviour. All our learning will grow out of the reaction of this infant *response mechanism* to the forces of our environment.

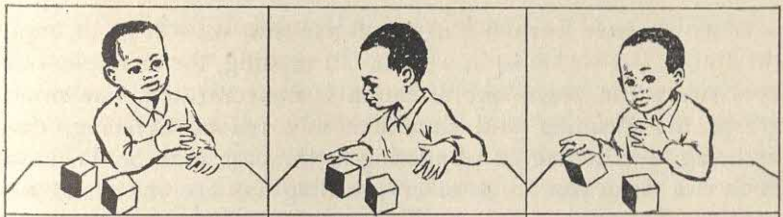
We can only imagine what our thinking was like as infants. As adults, we would describe it as confused, because we did not respond precisely to all that was going on around us. There was too much for us, and our limited equipment for learning was overwhelmed by the flood of experiences. But doesn't that happen throughout life? At all ages, isn't there more than we can cope with? If we were to deal with all the experience that life offers for our learning, we would need to be super-human. Since we are not, we start, from birth, to select from the great mass of experiences around us those that we can deal with, gradually enlarging our capacity as we go. As a baby you begin by selecting the sights, sounds, smells, tastes and sensations that affect you most directly and most strongly and learn to associate them with feelings of pleasure, displeasure or fear. As each experience comes to have meaning for you, it opens up the way for new selections and deeper understanding. So your knowledge grows and your skill to handle that knowledge develops.

STAGES IN LEARNING

The psychologist Gesell has pointed to an underlying pattern in all learning, which he illustrates from the way a baby goes about picking up a play-brick. These stages are shown in fig 20.

This sequence is reflected even in our adult learning. First we unconsciously select from our environment one thing which hitherto has passed unnoticed and we take notice of it in a neutral kind of way. Then for some reason, we respond actively to it and approach to investigate it. Our mental grasp is clumsy and inefficient at first, but in time our grasp improves, becomes firm and well-controlled, so that we are ready to try to use our new knowledge. At first we experiment with it, trying it this way and that until finally we find a way that we think is the best, and use it.

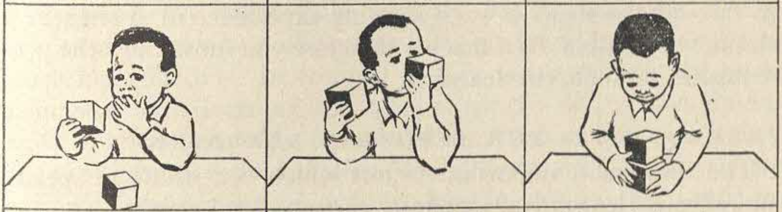
You will see from this that the stages are not clearly separated. Each grows out of the earlier ones as the flower grows out of the



Learning material passes unnoticed

Taking note of learning material

Approaching learning material to investigate



Grasping and improving the grasp

Experimenting with the learning material

Using the learning material

Fig 20. Stages in learning

plant. In infancy, the progression from one stage to the next may be slow, taking weeks. Even as adults our progress may sometimes be slow. But as our experience grows and our skills become more numerous, our learning becomes more rapid.

Reading gives a good example of the process at work. When we first learn to read, we look at the page without understanding. A glance at a page of text in a foreign language will take you back to that stage even now. Slowly, perhaps by our own effort or with the help of our teacher, we look more closely and see that the writing is made up of letters, arranged in groups and printed in lines. Our first grasp of reading is when we recognize the relationship between these letter groups and words whose meaning we know and use. But such an elementary grasp of reading is hardly adequate to be of any use. We must exercise our grasp until we can recognize words at a glance. The stage of experimentation in reading comes when we put our reading skill to work with different kinds of writing, such as notices, advertisements, stories, information books and so forth. The last stage is reached when reading is finally under our control and we can use it as we like. We cease to be worried by the mechanics of reading and are able to find in it real experiences of learning which bring pleasure and pain, amusement and serious thought.

When we have learned a new skill like this, we still go through the stages, but we do so in a flash. In reading, for example, our eyes sweep the page, our attention is concentrated, our mind grasps the meaning and simultaneously reacts, agreeing, disagreeing, questioning or wondering as the case may be. When a book can make you laugh or cry, reading has become a real experience for you.

So far as the teacher is concerned, the job is to help the child to go through the stages of each learning experience in as efficient a manner as possible. As a teacher therefore you must know the prerequisites for efficient learning.

PREREQUISITES FOR EFFICIENT LEARNING

The three most important factors which contribute to speedy and effective learning are *readiness*, *motivation* and *activity*.

Readiness is necessary for all learning. You cannot hope to teach the newborn child to walk nor make the four-year-old child able to use calculus. Readiness for learning depends on physical and mental *maturation* and also on the accumulation of *experience* as a foundation for the building of new learning. You cannot teach a child to talk until maturation has done its work and you cannot teach him to read until he has established a certain degree of language skill.

One of your tasks as a teacher will be to recognize readiness in the child. There is no simple guide. You will have to learn in the same way as the farmer recognizes the right time to hoe, to plant, to harvest and even to sell his produce. It is a matter of experience. Readiness in the child is often shown by an eager response to the learning task with which he is presented. It is always accompanied by rapid progress once learning is begun.

Lack of readiness may be due to lack of maturation or insufficient preparation of the child in those foundations of learning upon which the new learning will be built. The result will be painfully slow progress or complete absence of progress.

Motivation is important in learning because it provides the power. Just as the car with a powerful engine can travel fast, so the child driven by strong motivation will learn rapidly. But all motives are not equally strong and so, for efficient learning, we have to concentrate on the strongest.

Motives may be either *externally imposed* or *self-imposed.* For example, we may do something because we have been told to do it, or because we are anxious to do it. The one is externally imposed, the other self-imposed. But the externally imposed motive may become self-imposed if we obey someone because we want to please them. Duty is a self-imposed motive. Generally speaking, self-imposed motives are necessary for efficient learning and a moderate amount of anxiety is beneficial.

The strongest motives arise from the strongest emotions we feel. The saying, "A burnt child fears the fire" reminds us that a single lesson may be sufficient to make us learn and remember a truth for a lifetime. In contrast to this, weak motives like those associated with learning the rules of simple and compound interest in arithmetic, often fail to establish learning but, even if they do, the lesson is soon forgotten. The difference lies in the strong personal involvement felt by the child in the one case and the absence of it in the other. As teachers, we must seek to make our children become personally involved in their lessons.

The motives which energize our learning may change as the process of learning goes on. Two children may play with identical toys but one throws away his toy as soon as his initial curiosity has worn off. The other grows more and more curious with his. Curiosity changes to interest and pleasure as the motivation of his play. Teachers need to notice when the motives which stimulated their children's learning at first begin to falter. It is then that they must supply new motives, or, better still, encourage their children to supply new and more vigorous motives. This is a task which requires individual attention.

Teachers need to recognize that motivation is closely linked with aims and goals. They need to remember that the children will have aims as well as the teacher and that these aims may be quite different from the teacher's. Your skill as a teacher will lie in your ability to use the aims of your pupils to motivate their learning in the same direction as your own adult goals and thus utilize the full energy of the pupils towards worthwhile learning.

Nothing is learned unless we are active in it. We learn by doing and we do what we learn. This is the test of true learning as opposed to the cloak of learning that so many people wear to cover their ignorance.

Some teachers think of activity in terms of play, games, jumping about and lots of noise. This does not follow. Thinking is just as much an activity as modelling.

A very young child, however, can experience fully only what he does himself. He does not have sufficient experience to be able to re-live the experiences of others whom he hears of, reads about, or even whom he sees. Older children, on the other hand, can be moved to tears by a sad story or become enraged by an account of cruelty. They feel just as though they personally were experiencing the actions described because they have sufficient experience to be able to share the feelings of other people. The lesson for teachers from this is that they must choose activities which are suited to the age and experience of their children.

The need for activity in learning never ceases. In conscious learning there is no such thing as the passive learner. There are degrees of activity. The more active the child is, the more quickly he will learn. But this is not the only factor in his speed of learning. Some activities are wasteful of time because the same result could be achieved much more quickly by using some other form of activity. For example, a young child may need to be shown a model of a boat before he understands what it is like. The older child will learn just as effectively by looking at a picture. Adults are capable of getting the right idea just from reading about boats. The type of activity used in learning should be appropriate to the age and experience of the children.

Another feature of the need for activity in learning is in the use made of *practice* and *repetition*. A great deal of our effective learning depends upon repeated experiences. For example, memorization such as we use when we learn a poem by heart, depends on our repeating it over and over again. We learn attitudes by repeated experiences of the same kind; we learn habits and skills by repeated practice. In fact we say that it is practice which makes perfect. The more often we do something, the more established does it become as a part of our total learned ability. This helps to emphasize the importance of activity both in its doing and repetitive aspects as an integral part of the learning process.

LEARNING PROCESSES

There are different ways in which learning happens. The following are the main ones:

1. *Conditioning*

The newborn baby is fed and nursed by his mother. She is the one who satisfies all his early needs. Quickly he comes to associate her with the satisfaction of these needs and even the sound of her voice may be enough to settle him when he cries. He is learning through *association.*

Learning by association, or *conditioning* as it is called, is a useful method for learning attitudes and habits. It is good for children to like school lessons and the teacher, and the teacher has it in his power to achieve this.

It is through conditioning that we react to certain things in a specific way so that, for example, when we see a snake we automatically jump or when we hear a warning cry we involuntarily seek safety. These reactions have been built up by the repeated use of the same response to a particular stimulus. They build up in our minds a system of associations so that when we see or hear anything, the appropriate response automatically leaps to action.

This is the basis of propaganda and advertising slogans which try to make us associate the whitest washing powers with a particular brand of soap powder or the strongest bicycles with a particular make. Repeated often enough, these stimuli will make us react as the advertisers want.

2. *Training*

Training has much in common with conditioning because it is used in developing attitudes, habits and skills. It is used by the football coach who wants a first-class football team. By training, elephants can learn to dance, men can become sword-swallowers and children become obedient, respectful, quick readers or almost anything the teacher wants.

Training shares with conditioning two main qualities. It depends on a system of punishments and rewards and it must be repeated frequently to become effective. Thus children can be rewarded for work which is done well and punished for practices which the teacher strongly wants them to avoid.

Rewards do not need to be material to be effective. Some teachers give sweets or stars to their children for good work. Some offer praise or write words of commendation in their exercise books or on their reports. In the same way punishments do not need to be physical and, indeed, corporal punishment is forbidden in schools in some countries. But administered properly, corporal punishment can be very effective and avoid the harmful effects of some other forms of punishment such as sarcasm and antagonising attitudes. Non-physical punishments such as verbal rebukes, giving a child extra duties in and around the school, making him set right damage he has done or the withholding of privileges can also be used. Two principles to be observed are, first, that discipline should be based on mutual respect between pupil and teacher and secondly, that rewards and punishments should be appropriate to the age and character of the individual. There is no point in giving stars to children whose age makes them despise them as rewards and it is doubtful if a straightforward beating will have any effect upon a child already hardened to physical beatings.

The need for *consistency* of practice is an important feature of both conditioning and training. The children must *always* receive the same or similar treatment so that habits develop. Inconsistent treatment greatly weakens the effectiveness of the method.

Another feature of training is that the activities involved are greatly strengthened by their repeated use. The more often a child performs as he has been trained to, the more likely he will continue to do so even when training is stopped. Thus children well trained in the rote work of school subjects such as spelling, multiplication tables and so forth will automatically continue to perform well in these.

Training is the only kind of learning which has considerable *transfer value*. Training in qualities such as neatness, carefulness, persistence and punctuality have a high degree of transfer value to many school and day-to-day practices. The aim of all training is to achieve efficiency of performance; that is, the best possible standard with the least possible effort.

3. *Trial and Error Learning*

Faced with a new problem to solve by ourselves, our learning will nearly always be of this kind, e.g., as the result of experience which is itself the result of *trial and error*, we tend to eliminate those activities that are unsuccessful and consolidate those that are successful.

Trial and error learning is not an efficient method of learning.

In a particular case, it may take a long time before an individual hits on the best course of action. The time and effort put into the unsuccessful attempts is wasted.

On the other hand, the element of discovery is of great psychological value. Likewise the conscious rejection of negative courses and the acceptance only of the positive produces a robust type of learning with lasting qualities.

The teacher can usually arrange for a compromise which eliminates much of the waste of time associated with pure trial and error, but which holds on to the sense of discovery. We can call it '*guided discovery*'. In this, the teacher sets the stage for learning by providing all the materials which will help the child in his search for truth. Then with a few carefully worded instructions, the child is launched into his voyage of discovery. Instead of the unknown appearing to him as a baffling barrier with no clear path of approach, it is presented rather like a treasure hunt with the instructions, 'Begin here!' and the various clues he needs presented to him.

4. *Insight Learning*

Insight learning leads to a deeper understanding than is found with other forms of learning. Like trial and error learning, its outcome is a discovery. The process of insight learning can be described by the proverbial 'putting two and two together'. The discovery, of course, is that it makes four.

Insight comes when you can step back from your learning and look at your learning material objectively. The discovery rarely grows on you. It usually comes as a flash of understanding so that either mentally or audibly you say, 'Aha!'

A simple example is a child who has been learning his number combinations for addition and subtraction and suddenly sees that a number like 6 can be made up not only by the combination of pairs of numbers like 2 and 4 or 3 and 3 but by multiples of the same number like 2 and 2 and 2. Insight of this kind is necessary for intelligent learning but a good many teachers are too impatient to prepare the ground for it and prefer to teach arithmetic in a mechanical way using meaningless rules.

A child may put two and two together and make three. Insight can lead to incomplete or inaccurate understanding. For example, a teacher who introduces the facts of the earth's axis carelessly may leave a child with false ideas about the poles and even set him off searching for the east and west poles!

The search for the link with what has already been learned is like that of the detective as he seeks a common factor in his evidence. With adults and older children, this process can be a purely mental activity, but with younger children it must be *concrete*. Thus a youngster looks at a picture of a man with a gun and says, 'That man is a hunter.' He might be right or wrong in his interpretation but his mind has gone through a moment of fierce activity to reach this conclusion. He has compared the man with all the men he has known and compared the gun with all the guns he has ever seen. He has combined the man and the gun in a massive selection programme carried out in a flash. In it, he has rejected all the kinds of men who do not carry guns and who do not carry guns like the one in the picture and finally decided that this is a hunter with a hunter's gun. So he says, 'That man is a hunter.'

The value of insight as a method of learning is its great speed and the depth of understanding that accompanies it. Understanding that may grow only slowly with other methods, or perhaps never fully comes, arrives in a flash with insight. The teacher can assist greatly in encouraging this kind of learning among his pupils in all of the subjects studied in school. It depends entirely on his presentation of the learning material. The more he can help the child to organize in his mind the new learning material with the relevant knowledge he has gained in the past, the more chance there is of him reaching the right conclusions and enjoying himself at the same time.

It requires of the teacher careful lesson preparation with thoughtful selection of what he presents and of the previous knowledge with which the new lesson material will be associated. It demands clarity of presentation so that the relationships within the material presented are easily seen. This clarity can be helped by the use of good teaching aids, by the use of practical activities and by orderly presentation. The reward of such teaching is when a child blossoms out with new understanding and fresh interest in his schoolwork.

5. *Learning by Imitation*

This is another quick way to learning though it does not share the depth of understanding that comes with insight. Opinions, beliefs and behaviour are often adopted quickly by people from others whom they admire. Fashions change through imitation; the fear of one person may become mass hysteria through imitation; most of the views people hold about politics and religion are arrived at, not by independent thought but by imitation. Indeed, when you think of all that you believe and do as the result of imitation it is quite alarming.

There are good ways and bad ways for the teacher to encourage imitation amongst his pupils. For example, he can present them with his own form of pre-digested knowledge and insinuate that it is 'the whole truth and nothing but the truth'. The only thing that can be said in defence of such cramming methods is that they are quick. But they are not to be encouraged because they weaken the critical faculty, take away the desire to test and prove all things, which should be the mark of education, and leave the children with a shallow understanding which allows forgetting to get rid of the knowledge almost as quickly as it is learned.

On the other hand, the teacher can be a living example of the truths he tries to teach. This is a very desirable method of teaching because it is sincere and carries weight for that reason.

A more practical form of learning by imitation comes in the use of demonstrations. Showing how something is done is a much more effective way of teaching then describing how it is done. All subjects can benefit from practical demonstration whether it is an arithmetic sum worked on the board by the teacher as an example, or a demonstration by the teacher of an agility exercise in physical training. Remember, 'Demonstration may be more trouble but it is quicker in the end.'

6. *Memorization*

Memorization is a special kind of remembering. It is what we usually call 'committing to memory' or remembering 'by heart'. Most children can memorize long texts and poems. The value of memorization, however, depends on the understanding that accompanies it. Without understanding, memorization becomes merely vain babbling. Unfortunately, much of what passes for learning in schools is of this kind.

There are certain principles which, if followed, make memorization easier:

(a) *Learning as Whole*

If the child sees what he is trying to memorize as a meaningful whole, the task of learning is made easier. Compare, for example, the relative difficulty in remembering the faces shown in fig 21 where one is shown as an integrated whole and the other in its component parts. This principle applies within reason to the learning of poems, songs and so forth.

(b) *Pattern Learning*

Pattern is essentially any arrangement that is orderly. If material that is to be memorized is arranged in some orderly way that gives it form or makes it more easily understood, it is easier to remember. You can see this in the rhythmic pattern of poems and jingles, or the letter patterns of mnemonics, or the form patterns of material set out under headings and sub-headings, or in the patterns of association whereby we link the thing to be remembered with some easily remembered object.

But the most important point is that we must use memorization for the right purpose. It is appropriate for learning facts. But when it is used as an alternative to understanding how things are caused or why they happen it is wholly inappropriate.

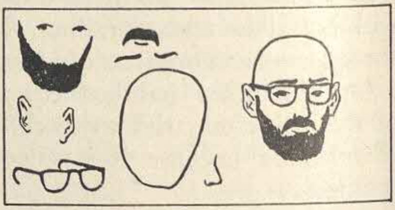


Fig 21. Seeing things as a whole and as component parts

Section B

GENERAL LEARNING

1. Give ten examples of things you have learned unconsciously and ten that you have learned consciously. Do lessons learned consciously tend to be more important for your life than those learned unconsciously? You can make this into a discussion based on the examples of conscious and unconscious learning drawn up by you and your fellow students above.

2. What is your earliest recollection? How old were you when it happened? Have you ever talked about it since it happened until now? What features about the incident do you think

make it so memorable to you? Why do you think the passage of time has not blotted out the memory like so many of the other things that must have happened to you around the same time?

3. If possible, visit a family of young children in which there is a baby, a child of about two and another who is older. Watch the play-behaviour of these children for about fifteen minutes and note the following points in relation to each child:

(a) *The baby:* Exactly how old is he? What activities did you see him perform which are reflex, that is, which he could perform at birth, and what did you see was clearly the result of learning?
(b) *The two-year-old child:* What reflex behaviour did you see in him and what learned behaviour? How efficient is his learned behaviour? Did you think he had mastered the activities he was using?
(c) *The older child:* Find the answer to the same questions as for the two-year-old child and see in what respects his learned behaviour has become more efficient.

4. Choose a suitable picture which shows some action but requires a certain amount of understanding to interpret what is happening in it. For example you might use the picture in fig 22. Study the picture with some fellow students and draw up a list of the people and things shown in the picture, a list of the events

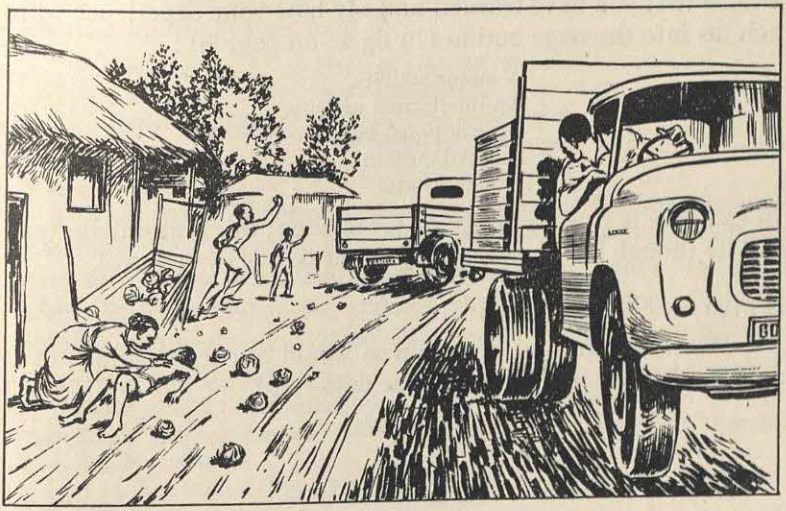


Fig 22. A story in a picture

that have happened, what the various people in the picture are doing and possible explanations of the event.

Ask three children to help you in the experiment. One should be between the age of 2 and 6 years, one between 6 and 12 years and the other between 12 and 16. Interview each child separately, showing him the picture and asking him to do the following things:

(a) 'Look at the picture carefully.'
(b) 'Say what you think the people and things in the picture are.'
(c) 'Tell me all the things that have happened or are happening in the picture.'
(d) 'Give me two possible explanations for what has happened.'

Give a mark for each correct thing the child says and then compare the scores of the three children. Who has noticed most and who has noticed least? Who has been able to give the fullest list of the events taking place? Who has given the most likely explanation of what has happened?

On the basis of your conclusions from this experiment, say to what extent a child's understanding is related to his age and thus to his experience.

STAGES OF LEARNING

1. Choose an example of each of the following types of behaviour that you have learned and say how your experience with each fits into the stage outlines in fig 20 on page 91:

A motor activity.
An intellectual activity.
An emotional habit.
A social custom.
A moral habit.

An example is given on page 91 for reading; this is an intellectual activity though it depends on the motor skill of eye control.

EFFICIENT LEARNING

1. What background of readiness would a teacher require of a child before beginning to teach the following?

Computation.
Art.
Football.
Honesty.
Politeness.

2. Discuss the pros and cons for lowering the age at which children can commence formal education in school to less than six or raising it above six.

3. Make a study of a child in an infant class who is making little or no progress and find out whether lack of readiness is at the root of it.

In the same way make a study of a child in an infant class who is making very good progress. Find out from his parents what evidence they saw before he went to school of his readiness for it.

4. Discuss the arguments in favour of delaying the teaching of parts of the school curriculum which less intelligent children find difficult until they have matured mentally to the age at which the normal child is usually taught them.

5. Give examples of learning that you have found difficult, not because of lack of physical or mental maturation but because of lack of necessary background or experience.

6. Make a list of externally imposed motives and another list of self-imposed motives commonly found in school.

7. Discuss the list of emotions given below, first in relation to their degree (for example, the difference between great fear and mild fear). Then discuss how these emotions are commonly aroused and expressed in school. Finally place them in order of merit as motive powers for school learning. Does the order of merit change if you make one list for the emotions in their highest degree and another for them in a mild form?

Ambition.
Anxiety.
Desire to please.
Duty.
Fear.
Hope of possible reward.
Genuine interest.
Jealousy (lest someone else does better).
Pain (physical or mental).
Pride.

8. Visit your Demonstration School on a Friday afternoon. Examine the time table to see if the choice of subjects compensates for the loss of motivation that precedes the end of the school week. Visit the classrooms and see what methods the teachers are using to maintain motivation. Answer the following questions:

(a) What subjects appear on the Friday afternoon time table that you believe help to provide motivation by their very character?
(b) What motives did you see or hear teachers supply their children with while teaching?
(c) Did any teachers supply new motives during the lesson to encourage children?
(d) What was the response of the children in the afternoon session?

9. Study the list of emotions given in question 7. What might be the aims or goals of a teacher in whom these emotions are roused? For example, under 'desire to please', the teacher might try to please:

(a) The children and gain popularity.
(b) The headmaster and curry his favour.
(c) The manager.

Give as many goals for each as you can.

Now make a list of possible children's goals in the same way. Select from each list those that you think are worthy and discuss how the teacher's and pupils' goals can be reconciled in practice.

10. Make as full a list of activities suitable for use in school as you can. How many can be carried on without noise? How many can be carried on without making a mess? How many can be carried on without violent movement like running about and jumping? How many can be carried on without rearranging the classroom seating?

11. Suggest activities appropriate for the following age ranges of children:

(a) 6 to 7 years.
(b) 8 to 9 years.
(c) 10 to 12 years.
(d) 13 to 16 years.

Conditioning

1. Discuss the sounds and smells you like in college and those you dislike. Try to explain how you have come to like some while disliking others.

Discuss in the same way the subjects you liked when you were at school and those you disliked. Have you changed your attitude to any of these since leaving school and studying them in college? Explain your answer.

2. Discuss what the staff of a school might do to the classrooms and school surroundings to help the pupils associate them with a sense of happiness.

3. Could slogans, such as those used in advertising, be used in school to help teaching in any way? Make practical suggestions along this line.

4. What are the advantages of automatic responses with regard to school learning?

Training

1. Make a list of the kinds of rewards that can be given to help learning in school, stating in each case the age range for which you think it is suitable.

Do the same for punishments.

2. Discuss inconsistencies you have seen in training methods for physical, mental, social and moral training. What effect upon pupils has inconsistency in the teacher between what he requires of the pupils and what he does himself? What effect has inconsistency with regard to punishments and rewards?

3. Give examples of how practice makes perfect in the following activities:

Motor skills.
Intellectual skills of a mechanical nature.
Emotional habits.
Social customs.
Moral habits.

Trial and Error

1. Make a collection of identical matchboxes, about thirty in number. Empty all of them except one. Lay them in a disorderly arrangement on a table. Invite a group of people representing each of the age groups, infancy, childhood, adolescence and youth to come into the room one by one and find the box with the matches in it. Say to each, 'I want you to find the one box on the table that has matches in it. All the rest are empty. Find the box with the matches as quickly as you can. Begin now.'

Time each person and study the way they go about trying to find the full box. What factors are connected with the success of the quickest person?

What would have been gained and lost by telling each person which was the matchbox they were looking for?

2. Compare these two questions that might be asked in a nature study lesson as the children are gathered round a pool of water.

(a) 'Look at the pool and tell me what you see.'
(b) 'Look at the pool and tell me when you have seen a tadpole which has no legs, one with legs and one with almost no tail.'

In what way does trial and error enter into what is asked in each case? How does the second question promote 'guided discovery'?

Make up examples of your own of ways in which trial and error learning can be changed into guided discovery.

Insight

1. Place an object in a high position out of reach of the normal child. Ask a child to find a way of getting it without climbing on a chair. Watch the way he tackles the problem and note the points below. Then say what you have learned of insight learning from this.

(a) How long does he stand still before acting? What do you think he is thinking during this time?
(b) What use does he make of past experience in his attempt to get the object? For example, do the tools he tries to use indicate that he has done this sort of thing before?
(c) How many unsuccessful attempts does he make?
(d) Do unsuccessful attempts make him change his method?
(e) What is his reaction when he succeeds?

2. What things must the observer see as a relationship in the picture below if he is to reach an insight conclusion?

3. What effect upon understanding does insight have that makes it an important learning method? Give examples from your own experience.

4. If you were going to teach area to children, what basic background of previous knowledge would you have to be sure they know? Prepare a lesson which draws together this necessary previous knowledge and presents the concept of area in such a way that the children will see for themselves the relationship and thus experience insight.

Teach the same lesson but in such a way as to make use of a certain amount of trial and error learning instead of insight. Compare the results.

Imitation

1. Give examples of things you have learned to do just by watching other people do them. Give examples of beliefs which you hold which you have never tried to prove or test for yourself. Give examples of customs you keep just because everyone else does

them. Give examples of moral practices you accept as normal today because people do them but which are expressly forbidden in the scriptures.

On the basis of these examples, hold a discussion on the widespread effect of imitation as a means of acquiring attitudes, habits, skills, beliefs, opinions, convictions and values.

2. Suggest ways in which imitation can usefully be used in teaching the following school subjects:

Arithmetic.
Language.
Religious knowledge.
Rural science.
Geography.
History.
Art and craft.
Music.

Also make a note of bad uses of learning by imitation commonly found in the teaching of these subjects.

3. Give a fairly difficult puzzle or problem to a fellow student and let him solve it by himself. Time how long he takes to get the solution. Show another student how to do the same problem and then ask him to do it himself. Time how long he takes, including your demonstration.

What methods of learning were used in each case? What conclusions would you draw from the experiment as to the merits of each method?

4. Discuss the following assertions:

(a) 'We are forced to believe from the study of facts that all the forms of behaviour we call the innate tendencies of man are no more inherited than the clothes we wear, but are in fact built in by our parents and by the environment which they allow us to grow up in.'

(b) 'The readiness with which people blindly accept what they hear and read and copy the behaviour of those around them, suggests that "all we like sheep have gone astray" just about sums us up.'

(c) 'Scientific theories are the curse of our age. Scientists propound them, a gullible public swallows them as truth and they get written into the textbooks as facts. Soon experiments destroy many of the theories and the public must spew out the old to make room for the new. In the process, real truth becomes drowned in the vomit.'

(d) 'Examples and illustrations are windows through which the light of understanding may pass to illumine our minds.'

Memorization

✓1. Cover the right-hand side of fig 21 on page 100 and show the component parts of the face to a few people for ten seconds each.

After one minute ask each to pick out from those in fig 23 the face which was represented in fig 21.

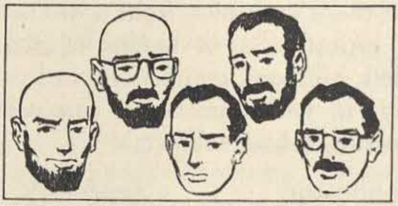


Fig 23. Faces for identification

Repeat the experiment with a different group of people, this time covering the left-hand side of fig 21. Add the scores for each team. Which group did best? What does this suggest is the value of seeing a thing as a whole for memorizing?

2. Study the diagram in fig 24. The full length of a line from top to bottom represents a whole poem, song or passage for memorization. Where part of a line only is shown it represents the beginning, middle or end according to its position. The pattern shows the best method of trying to learn a memorization passage that is too long to be learned as a whole.

Try with two students, one using this method and the other learning by any way he likes, a passage of about fifteen lines in length. Find who succeeds first in learning it.

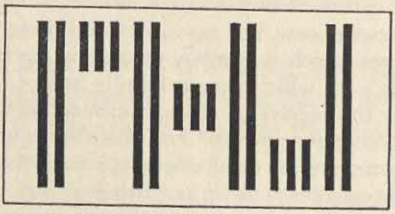


Fig 24. Learning a poem as a whole

3. Study the examples of pattern learning given below and then discuss examples other students have used or made up.

(a) *Jingles*

eg. London is the capital, the capital, the capital;
London is the capital,
The capital of England.

(b) *Mnemonics*

eg. A Mnemonic for remembering the order of processes in arithmetical simplifying.

B Brackets.
O Of.
M Multiply.
D Divide.
A Add.
S Subtract.

(c) *Headings and Sub-headings*

eg. *General Backwardness may be due to:*

(a) Low intelligence.
(b) Physical ill-health.
(c) Broken school attendance record.

Specific Backwardness may be due to:

(a) Poor teaching.
(b) Repeated changes of teachers.
(c) Absence at a critical time.

GENERAL

1. What are the learning methods implied in the following statements heard in the classroom?

(a) 'Listen carefully and do as I say.'
(b) 'I am extremely disappointed with your behaviour. If there is a repetition of this there will certainly be trouble.'
(c) 'Watch as we do this example on the board.'
(d) 'See if you can get the same answer by a different method.'
(e) 'Watch me!'
(f) 'Let me see who can get the exercise finished first and neatly done.'
(g) 'This is disgraceful work. Do it again!'
(h) 'Good morning boys and girls!'
(i) 'Look at the hours of daylight for different places that we have collected from diaries published in different countries. Look too at the globe here—one half in shadow and the other half illuminated. Who can see how the rotation of the earth in different attitudes with respect to the light and shadow leads to different lengths of daylight?'
(j) 'Even though you don't understand it, you've got to learn it.'
(k) 'When we cover a thermometer with a damp piece of cloth like this, look what happens. Who can suggest therefore why we should put on our clothes soon after playing football?'
(l) 'I want you to come knowing the main facts about the Niger expeditions before our next lesson.'

2. Discuss the use and abuse of the different methods of learning. Bring out the good qualities of each as well as the weaknesses and suggest ways of making good use of them in teaching.

For Further Reading

M. V. SEAGOE.	*A Teacher's Guide to the Learning Process.*	W. C. Brown Company Publishers, Dubuque, Iowa.
K. LOVELL.	*Educational Psychology and children.*	University of London Press.

6. THE PATTERN OF LEARNING

Section A

TAKING NOTE OF EXPERIENCE

In ordinary life, vast quantities of useful experience pass us by unnoticed for various reasons. It may be that we are not very observant or that we do not understand very well what we see and so it passes over us. Perhaps we are just not interested or maybe we are so interested in something that we take no notice of anything else that is going on. *Attention* is necessary if we are to take note of experience.

For example, in a crowd watching a football match there are likely to be many who do not notice half of what goes on. Some look at the field and see the game, but their attention is captured by the physique of the players or their 'nice' jerseys. Their minds are constantly wandering from one thing to another and are never concentrated for more than a moment. There are others who enjoy the game but miss completely the skill involved. Their knowledge and understanding of football is too limited for them to appreciate anything more than the most obvious infringements. They cheer the wild kick rather than the skilful pass. Other spectators may not really be interested. They may have been brought by a keen football fan but do not care who wins or what happens. All they want is to get home or go to the cinema. There will be others in the crowd who notice very little of the match because their attention is caught up with something else. Perhaps it is an argument with their friends over last week's match or perhaps a pretty girl near by. We all notice different things and react differently to what we see.

Some experiences may be literally beyond our reach. The oasis dweller has no chance of experiencing the sea and we, in like manner, are restricted by our own limited environment. But education tries to broaden our experience by making possible, not only direct experience, but also those excursions of the mind into strange places, new ideas and new fields of knowledge which are made possible indirectly through the medium of books, films, radio and television. Well presented, such experiences can be almost as real as the real thing. This is the teacher's work.

The teacher must also play a part in selecting what the child will learn from. He can make the classroom a place rich in challenging and worthwhile experiences. By selecting his material carefully, he can avoid waste of effort and time for the children as well as for himself. He can make the whole environment of the classroom educational as well as his lessons. This double approach is most worthwhile.

Teachers must train the attention of their children if the benefits of teaching are to have their fullest effect. Hundreds of children have to be spoken to twice or thrice because they have not been trained to listen. Similarly much is lost through children not having been trained to observe. Listening and observing are habits which should be taught in the home. But if the home has failed, the teacher must take over. It is not difficult. Saying things once only and giving a sharp and immediate punishment to children who have not listened gets quick and effective results. Practice, in both listening and observing, makes perfect.

But you should be aware of the limited capacity for concentration of young children. The length of time for which a child's attention can be concentrated on one thing is short. Therefore give changes of activity and allow him to concentrate his attention on objects rather than ideas. An understanding of these principles will keep you from giving the type of lesson found all too often in schools where endless talk is given to the children instead of real experience.

INVESTIGATING EXPERIENCE

'You can lead a horse to the water but you cannot make him drink.' It is much the same with children. *Motivation* is all-important for getting children to learn once their attention has been captured. Once children want to learn, the battle is half-won.

What if they do not want to learn? You can always impose force. You can make them pay attention and compel them to learn with threats of punishment or promises of reward. But the value of such methods is not to be compared with those in which voluntary co-operation is gained. *Externally imposed* motives always result in a shallower degree of learning than when motives come from within.

The study of motivation, of what makes us interested or what makes us want to do something, introduces us to many theories. There are some people who try to explain motivation physiologically as the body's response to glandular secretions. Others explain it as the individual's response to the basic needs and drives of the body. Others explain it in more psychological terms connected with emotional and social pressures. Others take it into the fields of philosophy and religion. The truth is that, although motivation in general terms is a straightforward explanation of behaviour, in particular cases when we try to interpret it, we frequently fail to find the real cause. So often, what we *say* is our reason, is nothing of the sort, even though we believe that it is.

For practical purposes, therefore, it is useful to reduce motivation to two types, *externally imposed* and *self-imposed.* Externally imposed motivation includes the fear that drives children to slave at their work for a stern teacher and the hope of reward that spurs them to fresh efforts of diligence. It includes the emotions roused by the scorn or sarcasm of an unkindly teacher and the anxiety that attends the approach of examinations and the day of reckoning. Children who work hard to get good marks or to be top of the class or to obtain certificates are responding to externally imposed motivation. In the same way teachers who turn learning into games or play or competitions are applying external motives. In the absence of any other kind, externally imposed motives are necessary and useful.

Self-imposed motivation on the other hand goes deep down into our personality. We tackle a job because the task itself interests us, makes us happy or gives us satisfaction. We say we want to do it, we think it is important or we think it is useful. Reasons like these may or may not be our real reasons, but, when we feel them, they provide us with stronger support for learning than externally imposed motives. Such motivation quite often does not arise at first. To begin with, the teacher may have to supply the motivation, but he should always work for and hope that spontaneous self-imposed motivation will take its place.

Each teacher should make a thorough study of motivation, watching it at work. A study of commercial advertising, sales talk and the methods of confidence men will show him the way people can be persuaded against their better judgement, how they can be broken down and made to do things they would not otherwise dream of doing. 'All that glitters is not gold', but if it glitters brightly enough people will buy it.

INCREASING IN KNOWLEDGE AND SKILL

Skills are activities requiring co-ordination between mind and body. The learning of skills is based on the principle that if you practise something enough you will improve your performance in it to such an extent that it will become easy, efficient and automatic.

Obvious examples of *physical skills* are to be seen in athletic events like running, throwing and jumping or in games like football and tennis where ball control is important. *Manipulative skills* are found in the technical aspects of art, craft and writing. Skill in these leaves your conscious mind free to exercise its creative powers instead of being taken up partly by the actual control of the paintbrush or the pen as the case may be. *Mental skills* are needed for proficiency in reading and computation so that the mind is freed for the conscious process of thinking and understanding. The mechanical work of recognizing words and phrases in one case and juggling with numbers in the other must become automatic so that the conscious mind is concerned only with comprehending the meaning or reaching the solution.

Habits are established patterns of behaviour covering not only physical behaviour such as the way we walk or cough or blow our nose but moral and social behaviour such as honesty and politeness. Habits include mental activities too, like speech, how we spell and punctuate or how we set down our work in arithmetic. Teachers spend much time trying to establish desirable habits in their pupils and in trying to eradicate bad habits from them. Unfortunately it is more difficult to get rid of the bad than it is to develop the good.

The value of skills and habits lies in their obvious economy of effort. Once learned, they have great momentum and continue with little or no effort from the individual. This leaves the intellect free to tackle the more important tasks to hand. Thus the more of our behaviour we can establish as skills and habits, the more our minds will be freed for the truly intellectual and creative activities of life.

Increase in knowledge is dependent on our ability to remember. If we were not able to grasp and keep a hold of what we learned, it would be like trying to fill a bucket with no bottom. Our knowledge would be no greater in old age than when we were babies. Indeed we could not survive. It is only because our mind can store away facts and recall them when needed that we are able to live.

But our memories are not like the storage shelves of a trading company with goods stored away ready to be taken down and used whenever they are needed. Our ability to remember things depends on three things: the nature of the thing to be remembered, the way we deal with it and our mind itself.

The mind of a person with exceptional memory is just made that way. He either has it or he does not have it. It does not require effort or training to produce it. But it is specific. Such a person is able to remember only certain kinds of things in this exceptional way. In other respects his memory is like yours or mine.

The way we deal with things that we want to remember is also important. It is difficult to remember things that have no meaning. It is like trying to hold on to a piece of wet soap. Things we want to remember must have meaning for us. This is so important that when we are asked to memorize something that we do not understand we automatically try to roughen it up so as to get a better grip of it by giving our own meaning to it or by rearranging it into a pattern that fits our grip better. This may have very bad effects and result in children memorizing without understanding the point. This is what leads children sometimes to give ridiculous answers which show they have missed the point completely. We must distinguish, therefore, when we get wrong answers from children, which errors are senseless and which are sensible.

Recency of learning used to be thought an important element in remembering, but it is now reckoned to be of much less importance than our emotional response. In fact we often remember things which happened years ago better than some that happened a few minutes ago.

All that we have considered so far in this section has been concerned with getting a firmer grasp of what we know and what we do. All that we learned about the learning process in Chapter 5 showed how our grasp, though weak and inefficient at first perhaps, could become firm and confident by repeated practice. Indeed, practice and repetition were shown to be a principle of improvement. Repetition was an aid to memorization; it established skills and habits, was part and parcel of conditioning and training, was the basis of trial and error learning and to some extent of insight. From all this it would appear that repetition is the key to learning and that practice does indeed make perfect. Unfortunately this is not completely true.

Firstly, no amount of practice will give a good result if what is practised is wrong and not known to be so. There must be correction. For example, you can ask a child to practise writing the word 'ship'. But if he hears the word 'sheep' instead and keeps on writing it, his repeated efforts will be to no purpose. Practice only makes perfect when we know what we are aiming at and can appreciate our mistakes and our progress. In fact practice makes perfectly wrong anything which is wrongly learned. Here is where the teacher must be alive to his responsibility to correct. He must spot errors in the child's work, note evidence of incorrect grasp or in the use of wrong techniques. If these go unchecked, wrong habits will become established and will be very difficult to correct at a later stage.

Secondly, learning by repetition encourages an automatic type of behaviour in which the intellect plays little part. Without intellectual involvement, the level of learning is very shallow. As a result we find children who can repeat definitions, quote notes and go through all the performances of learning but have no understanding. Such superficial learning, we call '*verbalism*' and, when thrown back at teachers in examinations or presented by pupils at the end of their schooling as the pinnacle of their achievement, it makes a mockery of education.

It should be evident then that practice, as an element of learning, must be used with caution. It must never become an alternative for understanding. The two must move in partnership.

EXPERIMENTING WITH KNOWLEDGE

Once we possess a certain amount of knowledge or skill, our immediate desire is to use it. Thus the boy who has just learned to ride a bicycle soon becomes daring and tries riding at speed. He takes risks, riding in different attitudes. Inevitably there are accidents, but these leave impressions which help to prevent the same mistakes happening again. Gradually, out of his experience the boy learns what is safe and what is dangerous and just what he can do on a bicycle. He passes from the stage where ignorance is bliss, through the stern school of experience to maturity and wisdom.

What happens is that new knowledge or skills invite experimentation and this experimentation continues until the new knowledge and skills are fully integrated with previous experience. In children this experimentation is what we call *play*.

Play is any spontaneous behaviour enjoyed for its own sake. But, as we have seen, it is purposeful. It is common to the young of animals and man alike. Animal parents have been observed to participate in play with their young and the flicking tail of a mother cat provides training material for the springing attacks of the kitten that are necessary for successful hunting. Interest in rearing semi-wild lions has shown that the parents must teach their young how to kill. It is not instinctive and much of the play that goes on amongst lion cubs covers the skills needed for hunting and killing.

The play of children covers a tremendous range of activities. There is much to support the theory that play is the experimenting stage of learning where the child tries out his newly acquired knowledge and skills. It provides him with scope for making errors when the consequences are not serious and for finding out by practical experience those activities that are satisfying and fruitful.

Play involves physical activity and this is one of the main ways in which physical development is exercised. It involves toys and playthings too and this is the way in which the child adjusts himself to the material world in which he grows up. The make-believe and pretence that occur in play are ways in which the child experiments with the activities of people and things. Thus he becomes now a fierce lion, now a kindly father, perhaps a stern teacher or a whimpering child.

From the teacher's point of view, an understanding of play is important because it helps him to know when play can be best used for learning. Left to play at what he likes, a child will waste much time in activities which are irrelevant to the learning programme set by his teacher. But if the teacher guides the range of play to useful activities and limits the use of play to experimentation with and strengthening of useful knowledge and skills which the child has already begun to grasp, he will find this spontaneous activity most rewarding, not only in the interest the child develops in his learning but in the better results which he achieves.

PUTTING KNOWLEDGE AND SKILLS TO WORK

The ultimate value of knowledge lies in using it. Just as the infant, left with bricks to play with, will eventually build them one on top of the other, so our learning as students and our work as teachers should be directed to the purpose of putting our knowledge and skills to work.

What people do with their knowledge and skills depends very largely on the results of the experimenting stage. Those activities that give pleasure and provide satisfaction tend to be pursued, while those which give neither pleasure nor satisfaction fall into disuse.

As teachers we should try to see that what gives pleasure and satisfaction to our pupils is worth while and in keeping with our aims and values in life. The decline of civilizations has always been associated with the rot that comes from degenerate morality, when the aim of the people has centred on personal comfort, leisure and self-seeking pleasure. Thus there is urgency in our task if our present civilization is to survive.

On a limited scale, the teacher's check on how the child's knowledge is being put to work requires that he be constantly aware of the activities of his children in school and out. In school, this includes how well he does his work, how well he applies himself, how he behaves and so on. Out of school, it means knowing something of his activities, the kind of books he reads, the films he sees, the friends he makes and how he spends his leisure. This is not spying. It is simply trying to complete the child's learning. As long as there is conflict between the school and the home, the teacher's task is almost impossible. Only when a real co-operative spirit exists can there be the realization of the goals for which schools exist.

Section B

TAKING NOTE OF EXPERIENCE

1. Act a short sketch or play in front of six people, a boy and girl of about ten years of age, a boy and girl of about fifteen years and a man and woman over twenty. Say before you begin that

you hope they will enjoy it, but do not say that it is a test of their memory or what they notice. When the sketch is finished ask them to write down the following points about it:

(a) A brief account of the story written down as a list of incidents.
(b) The main characters.
(c) The most amusing incident.
(d) The most serious incident.

Examine the answers of each person and see if you can explain the differences in the number of points remembered about the story of the play, the characters who are remembered and forgotten and the nature of the incidents which are chosen as either the most amusing or most serious. You should learn some useful tips about attention from this.

2. Take an example from every subject you teach of a lesson which contains material which is normally outside the physical experience of the children you teach. Discuss how you would provide the missing experience by other means. For example, children in Nigeria are unlikely to have physical contact with the Masai people of Kenya and Tanganyika. But in geography they will learn about them. Some relevant experience could be gained by a visit to a Fulani group of 'Bororo' or by showing pictures or films of the Masai themselves, reading travellers' tales about them, listening to an appropriate schools' broadcast and so forth. Consider each lesson in the same way.

3. Discuss ways and means of making the classroom into a place rich in challenging and worthwhile experiences and indeed, of ensuring that it always presents an educational environment. Try out your suggestions in practice to prove that they will work.

4. Study the fluctuations of your concentration by looking closely at fig 25. Sometimes you will see it as a white jar on a black background; then it will change to two black faces looking at each other.

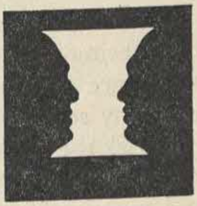


Fig 25. Look closely and what do you see

5. Train children in the habit of listening attentively by giving them practice in dictation, obeying instructions and answering questions in which the spoken words have been given only once, Broadcast lessons and those in which a gramophone or tape recorder are used and followed up with questions or practical work

based on what is heard are also useful. Test the listening efficiency of the children.

6. Train children in the habit of observing by giving them practice in searching for special things before an expedition or demonstration begins and by asking them to make a note of any new or interesting things they see each day. Practice in looking for special objects in written material, maps and pictures is also useful.

7. Discuss the effect of the following on children's concentration in listening and observing:

(a) The nature of the sight or sound. (Its interest, novelty and concrete or abstract character.)
(b) The intensity of the sight or sound. (Its volume, if sound, or the size and colour if a visual stimulus.)
(c) The effect of change and contrast in permitting continued concentration.
(d) The effect of repetition on concentration.
(e) The relevancy of the material to the task as the child sees it (aural or visual).
(f) The physical attitude of the children (sitting or standing, comfortable or uncomfortable).

8. From the conclusions you have drawn from the discussion on attention in question 7 above, suggest practical ways for helping children to concentrate on the following aspects of practical teaching:

Blackboard work.
Teaching new factual information.
Teaching new steps in a process.
Carrying out routine work such as practice examples in arithmetic.
Performing a demonstration in front of the children.
Lessons conducted outside the classrooms.

INVESTIGATING EXPERIENCE

1. Discuss with a group of your fellow students their reasons for entering into teacher training. Analyse the reasons and see how many are influenced by externally imposed motives and how many by self-imposed ones.

2. Ask the members of a discussion group to submit a number of topics in which they have no interest. Let the group discuss ways and means of making an interest develop where once there was none.

3. Watch a good teacher in action and answer the following questions:

(a) What lesson did he teach?
(b) How did he encourage the children's interest right at the beginning of the lesson?
(c) What other motives did he draw upon as the lesson went on?
(d) Were any of the motives used natural to the children's interests and purposes?
(e) How did he rouse motives that were not natural?
(f) What was the effect of the lesson on the children? How did they like it? How well did they learn what they were taught?
(g) Did you see any evidence of efficient learning taking place in spite of dislike by the children of the lesson, the teacher or the methods used?

4. Draw up a list of externally imposed motives that are useful in teaching. Put them into order of importance.

5. Study your hobbies and leisure pastimes with a view to analysing what your own strongest self-imposed motives are and how they work in practice. Are there any lessons you can draw from this which will aid you in your work as a teacher?

6. Discuss the motivational aspects of the following phrases and their application to education:

(a) 'It isn't what you do, it's the way that you do it. That's what gets results.'
(b) 'Curiosity killed the cat.'
(c) 'If at first you don't succeed, try, try, try again.'
(d) 'The proof of the pudding is in the eating.'
(e) 'Only volunteers wanted!'
(f) 'Stupendous, prize-winning offer!'

SKILLS AND HABITS

1. Select some motor skill that you do well. Trace the development of the skill by answering the following questions.

(a) How long did it take you to become expert in it?
(b) What factors in your training helped to establish the good practices and what helped to eliminate the bad?
(c) What was your aim in learning this skill?
(d) Has mastery of the skill pleased you?

Trace in the same way the development of a manipulative and mental skill in which you are proficient.

2. Discuss the measures you have had to take in order to rid yourself of a bad habit. Say what value your own experience will

be to you as a teacher in helping children to be rid of bad habits. Summarize in a sentence the secret of habit breaking.

3. How would you correct the following bad habits in your pupils?

Bad pronunciation.
Bad spelling.
Bad writing.
Bad punctuation.
Bad manners.
Persistent unpunctuality.
Laziness.
Untidiness.

4. Compare two individuals performing the same activity, one of whom is skilled in it, the other unskilled. Notice the following points in your comparison.

Confidence of the individuals.
Number of useful movements made.
Deliberateness of their movements.
Smoothness of their movements.
Speed of their movements.
Time taken to do the same thing.
Quality of the resulting work.

5. Discuss the need for adaptability with respect to habits so as to avoid getting into a rut.

MEMORY

1. If you have the opportunity to meet someone with an outstanding memory, find out what special kind of thing he remembers well. Ask him how he has developed his memory and why he remembers the kind of things which he does. Test him in his own field of memory and also in a different one to see how he compares with a person with normal memory powers.

2. Test the importance of concentration for memorizing by getting two people to read simultaneously the following sentences to a third person.

(a) 'In all my seventy years I have never seen a sight like this one for beauty.'
(b) 'There were forty-eight runners in the race and each the champion of his country.'

Find out how many times the sentences must be read in this way before each can be repeated correctly by the listener. How many times must each sentence be read for it to be repeated correctly if they are read separately instead of simultaneously? Try this on another person for comparison. What is the lesson from this test for giving the child the best opportunity for learning?

3. Recall memorable events in your past experience and assess what the emotional content of these was which made them stick in your memory.

4. Repeating a passage several times is helpful in memorizing it. Do you see any relationship between this fact and the need for revision in teaching? Following this same analogy, when would you say was the most important time for revision—soon after something is learned or long after?

5. Discuss with others, ways you have used that have helped you to remember things better.

6. Arrange all that is said about memory in Chapter 5 and Chapter 6 in a way that you think will be memorable for you.

7. Discuss the following advice with respect to its effectiveness as an aid to remembering. 'It is better to have a look at the forest before studying the trees.'

8. The letters shown below are set out in two ways. In the first case they are arranged without any attempt to pattern them for memorization. In the second, they have been arranged in three-letter syllables to make memorization a little easier. See if this grouping does, in fact, make memorizing easier by giving to a student a card with the letters written on it in the first way and a card to another student with the letters written in the second way. Time how long each student takes before he can repeat every letter in the correct order.

(a) W-H-A-T-A-S-U-R-P-R-I-S-E-W-H-E-N-Y-O-U
K-N-O-W-W-H-A-T-T-H-E-S-E-C-R-E-T-I-S. ✓
(b) WHA-TAS-URP-RIS-EWH-ENY-OUK-NOW-
WHA-TTH-ESE-CRE-TIS.

Had you noticed that these letters form a sentence? How long would it take you to be able to repeat every letter in the correct order now that you know what the secret is? What does this prove to you about the relationship between meaning and ease of memorization?

PRACTICE

1. Collect a class set of children's arithmetic exercise books. Divide the books amongst your fellow students so that everyone has one. Study the errors the children have made in their sums. See if there is a particular error which any child repeatedly makes

which indicates that practice is making him perfect at the wrong thing. If you were his teacher, what action would you take?

2. Watch a physical education lesson. Pick out examples of exercises done wrongly. What would you have to do if these wrong ways of doing exercises became established as habits?

3. Give examples that you have experienced of mere 'verbalism' amongst schoolchildren. Discuss the causes and cures of the trouble.

4. Discuss the advantages of habits and skills. Decide what procedures used in reading, writing and arithmetic you should make automatic in the children by the formation of habits.

5. Comment on the following statement:

> 'Too much drill in the initial learning period may provide a child with a method of solving problems which he applies mechanically even when it is altogether inappropriate. The danger of education which focuses on sheer repetition is that it makes little provision for, and may even destroy, the desire for understanding and display of curiosity, imagination and creativity.'

PLAY

1. Study the play activities of a group of children who are not conscious that they are being studied. Note examples of activities which make use of the things mentioned below. Discuss also what you think each child is learning from his play.

   (a) Toys or play equipment.
   (b) Make-believe.
   (c) Experimental physical activity (e.g. wrestling as an experiment for the child in seeing how strong he is or how well he can use his fighting skills).
   (d) Experimental mental activity (e.g. mental competition in word games, etc.).

2. What play activities might you recommend when teaching the following lessons:

   Singing.
   Introducing weight or volume in arithmetic.
   Teaching a Scripture story.
   Map-reading.
   First-aid.
   The history of the local tribe.
   Reading.
   Composition.
   Drawing.

3. Make a list of all the suitable kinds of play activity that you think a teacher could make use of in school.

4. Discuss the extent to which play declines with increasing age and note any changes in the character or purpose of play as practised by adults compared with that of children.

USING KNOWLEDGE AND SKILLS

1. Trace the development of some knowledge or skill you possess. Trace it through all the stages discussed in this chapter, namely, taking note of it, investigating it, getting better at it, experimenting with it and finally using it.

2. Discuss the practical implications of the theory of learning discussed in this chapter.

3. Discuss the significance of the following points in relation to the process of learning:

Readiness.
Attending.
Observing.
Listening.
Concentrating.
Interest.
Habits.
Skills.
Attitudes.
Training.
Practice.
Remembering.
Forgetting.
Revision.
Play.
Understanding.
Behaviour.
Delinquency.

4. Many children develop a real fear and dislike of arithmetic. It is the only subject that causes such an extensive reaction as this. Discuss what you think goes wrong in the learning process to bring about this effect.

For Further Reading

See the books listed on page 110.

[illegible] recreation? [illegible] and [illegible] changes as the [illegible] purpose of play is served by adult commercialized recreation?

KNOWLEDGE AND SKILL

1. Trace the development of some knowledge or skill you now [illegible] through all the stages discussed in this chapter, [illegible] coming with it and finally [illegible].

2. Discuss the [illegible] of the theory of [illegible] discussed in this chapter.

3. Rank the [illegible] of the following [illegible] in relation to the [illegible]:

[illegible]

4. Many children develop a real fear and dislike of arithmetic [illegible] the only subject [illegible] about this [illegible].

For Further Reading

[illegible]

Part 3

TEACHING AIDS

7. BASIC TEACHING AIDS

Section A

ABOUT TEACHING AIDS

THERE is a common misunderstanding that teaching aids make the teacher's work easier, but the proof that this is not true is to be seen in the sad lack of teaching aids amongst teachers after they have left training college. The truth is that teaching aids are not *teachers*' aids, but *pupils*' aids. They are aids to *learning* rather than aids to teaching. In fact, instead of making the teacher's work lighter, they often make more work for him. That is why so few teachers use them as they might.

The case for teaching aids centres on the child. Any teacher who is concerned about his schoolchildren is bound to give thought to anything that is likely to help them to learn; and teaching aids most certainly do help.

They help in this way: a teacher's work consists largely of communicating experience to the child; he has two main ways of doing this—by *sound* and by *sight*—and teaching aids can help him with both. Those that assist in the medium of sound are called *aural* aids. Those that help through sight are called *visual* aids.

Of the two methods of communication, sound is the more limited because it consists largely of the spoken word. We have already noted how learning words without understanding leads to verbalism or parrot learning and is of no use at all. Aural aids can help to prevent this type of danger. The wireless, gramophone and tape recorder encourage the active, intelligent participation of the child and provide training in listening. These qualities are vital to efficient learning.

On the other hand, sight can make use of a much wider range of teaching aids than hearing can. These include books, pictures, maps, charts, films, models and practical demonstrations. It has been proved by many investigations that, when properly used, such visual methods result in more effective learning than that which results from lecturing, This is because most of what we hear must first be changed into visual impressions if we are to understand and remember it. This is particularly true of children. But there is always the danger that visual impressions may be memorized and still have no meaning for the child. This is the visual equivalent of verbalism.

In the argument for visual aids, it is significant that in many languages the words for 'I see' and 'I understand' are the same. This is because we understand when we have visualized or when we have seen. It can then be said that the most effective teaching aids are those which contribute a visual impression.

THE BLACKBOARD

The blackboard can be the most useful of all teaching aids if the teacher knows how to use it. But like all other aids, its correct use has to be learned and practised constantly.

Because the blackboard lies in front of the pupils it stands as a visual testimony of the teacher's work. It is worth taking note of a few simple rules that can help even the most inexperienced teacher to get very good results.

Common Faults and their Cure

1. *Bad surfaces*

Many teachers find their attempts to produce good blackboard work frustrated by rough surfaces. This usually happens on cement blackboards but sometimes also with a wooden board made from unseasoned timber. The only way to improve a bad cement blackboard is either to remake it or to fix plywood sheeting over it.

The appearance of some boards is bad through neglect. Blackboard paint and renovator should be used whenever necessary and the board should be washed with a wet cloth at least once a week. Do not forget to keep the blackboard duster clean too.

2. *Bad writing*

This fault may be caused by incorrect stance at the blackboard, incorrect use of chalk, carelessness, or all three.

The beginner should always start by keeping his head at the height at which he is writing, with his arm only slightly bent.

Later he will be able to use the board above head height and also stand slightly to one side as he writes so that the children can watch as he writes.

Chalk is not a good writing material; it breaks too easily. Therefore when using it, never use a whole piece, but break it in two before starting. Allow only a short length to stick out from the fingers and hold it firmly.

Blackboard writing may be bad because it is too small. This is easily rectified by looking at it from the back of the classroom and adjusting the size accordingly.

The inexperienced teacher will find it difficult to keep his writing horizontal, but nothing looks worse than a blackboard with writing which climbs or plunges steeply towards one corner. This can be prevented by scratching horizontal lines with a nail on the board and using them as guide lines. Experience and practice will make these unnecessary later.

Writing should be uniform in size and style. The style used should be the same as that used by the children and should provide them with a good example of what you want from them. It will be found that writing fairly quickly produces better results than very slow deliberate work.

3. *Bad arrangement*

The scattered arrangements of some teachers' blackboard work gives the appearance of accident rather than design. Work scattered here and there without any plan or pattern, reveals an absence of the preparation and planning that are essential for good blackboard arrangement. Never leave on the board after a lesson any more than is absolutely necessary.

The arrangement of a blackboard summary, if well done, can greatly increase its effectiveness. Good grouping and use of vertical arrangements make a memorable impression.

Coloured chalk can greatly brighten up the blackboard, but it should be used intelligently. It will be found better to use it for underlining than for actual writing. When underlining, remember to use a blackboard ruler.

A sure way to achieve a tidy blackboard is to plan it carefully in the lesson preparation and draw it to scale in the lesson notebook with the complete proposed summary shown on it. This is an excellent discipline for lesson preparation.

Blackboard drawing

It is common for teachers to be so afraid of their lack of artistic ability that they never make use of the blackboard for the purpose of illustration. This is a great mistake because it is not necessary to be an artist to make blackboard illustrations. Real art can be left to the artist, but each teacher can build up a collection of the kind of things he commonly wants to illustrate. These can be reduced to such simplicity that he can reproduce them as easily and effectively as he can write. Matchstick men are an example. Such simplified illustrations we call *pictographs.*

Maps on the blackboard should always be sketch maps. That is, they should be maps which can be quickly drawn to illustrate a particular point. The blackboard is not the place for painstakingly drawn detailed maps or diagrams. These should be drawn on large sheets of paper or card because they are going to be useful for longer than you can afford to keep them on the blackboard.

TEXTBOOKS AND WORKBOOKS

Thousands of new books are published every year but only a fraction of these are textbooks. The textbook is a very special type of book. It is written to satisfy a special need.

When a professor discovers something new as the result of his research, the most effective way he can pass on to others the fruit of his work is by writing a book about it. But, as a specialist, his book is likely to be of use to a very limited number of people and will be used as a *reference* textbook.

If the general student is to benefit from the professor's writings, they must be combined with other associated studies and simplified so as to cover the main teaching of a specific subject in a manner suitable for the general student. Such a book is a *general* textbook. On the other hand, an author may feel there is need for a book to cover the requirements of a particular syllabus, so he gathers from his own experience and from reference books the information which he intends the reader to follow step by step. Such a book is a *course* textbook.

Within each of these classes of textbook will be variations according to the age and standard of the student for whom they are intended. For example, textbooks are written for university students, secondary school children and primary school children.

Obviously each will not be satisfied with the same kind of book. With young children, the vocabulary and information will have to be limited. There will have to be pictorial illustration and perhaps colour to appeal to the child. The size of print will also have to be larger than that used for adults. Books prepared in this way are *children's* textbooks.

But it is one thing to know about children's textbooks and quite another to have them and use them in school. Often, through lack of money, savings in the school's budget are made on textbooks, or sometimes, for the same reason, unsuitable books are kept long after they are out of date. If a textbook ceases to be an aid to learning it has ceased to serve its purpose.

Teachers and school authorities should make a point of knowing what textbooks are published within the range required by their schools for the various subjects. They can do this by asking publishers to send them their catalogues, by looking at the advertisements and book reviews in educational magazines and by keeping in touch with the training colleges.

A textbook is not meant to be read at one sitting like a story book. If one did so, it would result in mental indigestion. Textbooks are teaching books and must be used according to educational principles.

In the lowest classes of a primary school, no pupils' textbooks are essential beyond those used in the basic subjects such as reading and arithmetic. In the senior primary classes, textbooks become increasingly necessary so as to encourage the children's interest and individual activity. Where a children's textbook has an accompanying teacher's book, the latter should be used by the teacher because it puts at his disposal all the experience and research of the author. Too many teachers ignore the teacher's book and teach impoverished lessons as a result. Only the wise and experienced teacher should dare to venture along an alternative route.

Workbooks are those printed books produced to accompany some children's textbooks. These books provide the teacher with prepared written and practical exercises for his pupils. He is thus spared the effort of thinking up exercises for himself and prevented from giving unsuitable exercises. But although these workbooks help to keep the poor teacher on sound lines, they tend to cramp the good teacher.

THE LIBRARY

The main aim of the teacher in teaching children to read should be that they learn to love reading. His own example can be a great help. Wide reading will enrich and colour his lessons. If he refers constantly to books which the children can get and which are within their capacity to use, he is more likely to get some of them reading for fun than if he sounds like someone who has never heard of anything except textbooks.

The teacher-pupil relationship can be greatly strengthened by a teacher who takes an interest in the child's reading outside the classroom as well as inside. As the children discuss with the teacher books which they have enjoyed, other children will become interested and run to get the book the next time the library is open. There is no recommendation like personal recommendation amongst friends for encouraging reading.

The library should supply the books that will be needed as the appetite for reading grows among the children. But there must be variety of type and standard of difficulty amongst the books. For example, one reason that children get behind in reading is that they find their present reading too difficult. The school library can be of immense help to them. With the help of a sympathetic and understanding teacher who guides the pupil to books of his own level and interest, the apathy, so much a feature of backwardness, can be changed into a new vigorous interest and enjoyment.

The library gives a teacher the opportunity to train children in the art of finding things out for themselves and in seeing the relationship between the different school subjects. Research assignments to collect information on subjects like transport or the Holy Land, lead children into books on geography, history, science and religion.

The library also gives the opportunity for children to get abundant practice in reading. It is this practice that is needed to remedy the slow reading speed of so many pupils leaving school. You need hardly be reminded that this practice must be silent reading for it is reading aloud that is one of the greatest factors in producing slow readers.

Lessons in social responsibility can also be effectively taught in the library. Library rules are made because they help everyone to benefit from the books in the library. Thus obedience to rules, honesty, care of public property and self-discipline can all be the outcome of the proper use of a school library.

The usual objection to a library in school is the cost. But the library is so valuable an aid to the teaching throughout the school that a certain proportion of the budget should be allocated to it each year. Do not be afraid to start in a small way. Things can grow once a start is made.

But do not depend entirely on school funds to build up the library. Teachers, when they leave, might be glad to present a book to the library. Or pupils might be glad to do the same. The name of the donor should be inscribed in each book. Another method is to encourage each child in the school to buy one book of the kind suitable for the library. A voluntary scheme of this kind, if put well to the parents, is the quickest way of building up the library.

Another important source of books for the library is the Regional Library lending system. Under this scheme, books suitable for schoolchildren are sent out free of charge. You should get in touch with the Ministry of Education if you are in doubt about central libraries in your territory.

The next problem is where to keep the books. There are three ways from which to choose:

(a) You may put all the books in a special room and call it the library.
(b) You can divide all the books up and allocate them amongst the various classes to form class libraries.
(c) You can put the more popular and easier books in the classrooms and keep the more difficult ones in a special room as a reference library.

The last method presupposes a large number of books and is expensive and rather difficult to organize well. The second limits the free circulation of books. The first is the best, but of course requires a special room and careful organization. But do not wait for a new room to be built before you do anything. The back of a large classroom can be a beginning to the library and the shelves can be of the simplest construction. Once you have a busy library system, you will have a good case for getting a proper room and proper library furniture from the appropriate authority.

The most difficult part of making a library into a useful teaching aid is the organization. A library is not merely a collection of books. It is an organized collection from which information on a particular subject can quickly be found. For this reason, books must be classified according to a system which the pupils can use. A record must be kept also of all the books that are in the library and some means by which they can be checked from time to time. A satisfactory system for the borrowing and return of books must be instituted. The children should also be encouraged to keep a list of the books that they read, not only for their own satisfaction but also for the information of the teacher, to let him see what progress each child is making and the special interests which are reflected in the child's choice of books. Rules must be made and kept for the proper care of the books. Only in these ways can a library continue to run soundly.

PICTURES AND CHARTS

Here is the A B C of good visual illustrations. Those used in teaching should fulfil as many of the requirements as possible.

Accurate.
Appropriate.
Artistic.
Brief.
Bold.
Bright.
Clear.
Careful.
Clean.

(a) *Accurate*

No information which is actually wrong should be shown in an illustration. This applies to inaccurate figures in statistics and to inaccuracies of representation in maps and pictures.

(b) *Appropriate*

Irrelevant pictures or charts should not be used in a lesson just for the sake of having some visual aids. Those that are used should not be so complicated that they cannot be understood by the children to whom they are shown.

(c) *Artistic*

Although illustrations should not be chosen just because of their artistic merit, nevertheless the best available should be used.

(d) *Brief*

The amount of information shown on a chart or diagram should be the absolute minimum. In pictures, too much detail is a disadvantage.

(e) *Bold*

Illustrations should be clearly visible from the back of the classroom. The size and boldness of the printing should be such that it can be read by the children in their seats if this is necessary. Bold lettering requires good height and thickness of the lines. Avoid tall spidery writing, for it is just as difficult to read as small lettering.

(f) *Bright*

Colour helps to brighten pictures and charts but it should be used intelligently so as to provide emphasis or contrast.

(g) *Clear*

Clarity of shape can be helped by outlining in black or using contrasting colours, but clarity of content depends on the elimination of irrelevant detail. Artists can eliminate irrelevant material more easily than the camera. That is why paintings are often better than photographs.

(h) *Careful*

This applies to home-made visual aids. They must be carefully planned and carefully executed. Slapdash work defeats its own purpose.

(i) *Clean*

Take care of your visual aids and keep them clean. Repair them when they get damaged and store them where they will be safe. Do not let them become torn, stained and ignored.

When using pictures, always remember that they are a second best. It is always better to show the real thing. Train children in careful observation by giving them things to look for in the pictures you show. Use coloured pictures in preference to black and white and keep them on display only as long as they have a continuing interest value.

Charts may be produced in the form of pictorial representations, maps, diagrams, graphs or a combination of these. They are essentially visual summaries. Some charts pin-point events in a story such as the life cycle of the frog, or time charts. Others show condensed information in statistical form like graphs or quantity symbols. Their value lies in presenting teaching material in a condensed form. They are therefore of particular value for recapitulation and revision in lessons.

Charts and pictures serve different purposes in teaching. Pictures help to illustrate and bring a sense of reality to what is taught, whereas charts contain the lesson material itself. Thus pictures are of use for stimulating interest, creating correct impressions and bringing lessons to life. They are aids in the true sense. Charts on the other hand are more useful as a means of presenting the material that is to be learned in a memorable form and as such often play a central part in a lesson or, as has been said, a concluding part.

Pictures and charts of all kinds can be obtained from many different sources of which the following are notable:

National Information Services and Consulates.
Travel Agencies.
Public Relations Departments of nearly all the large Industrial and Business concerns.
Educational Publishers.
Newspapers and Magazines.

FLANNELGRAPH

The name '*flannelgraph*' is used here to describe not only those pictures for which temporary adhesion is provided by lint on flannel, but also all those other methods by which the same effect is achieved.

The original flannelgraph was made by printing pictures and mounting them on lint. Such pictures could be stuck to a surface with a hairy or rough texture simply by pressing them to it. Newer methods achieve adhesion by excluding air from between smooth plastic in the same way as a rubber sucker does on glass. The plastic for this method is known as *plastigraph*.

Flannelgraph allows the teacher to tell a story and build it up with visual illustrations as he goes along. The children's attention is thus focused on the visual aspects of the story at each moment. The 'pieces' or pictures used in the story are mounted one at a time on a suitable background which may either be plain or depict a background scene. They can be taken off whenever required.

To make the best use of this method of visual illustration, you must carefully prepare the layout of your flannelgraph before you teach it so that the final picture gives an effective and well-balanced visual impression. Collect the pieces in the order in which you will use them when telling the story so that you are spared the embarrassment of having to break your story while you search for the needed piece.

MAPS, ATLASES AND GLOBES

Maps combine the features of both pictures and charts in that they represent something that is real and, at the same time, do so in the form of a summary. Maps are scaled-down representations of the real earth and it is important to remember this. Too often children get the idea that maps exist in their own right.

Because every map is a symbolized summary of the real thing, it means that the information it shows is very condensed and, like a chart, requires close study. Relationships can be seen at a glance, but meaning and significance require careful study. The smaller the scale of the map, the greater is the degree of summarizing and the more symbolic it becomes. Thus we have to learn to read maps just as we have to learn to read print before we can understand what they describe.

One of the difficulties of map-makers is in drawing on a flat surface what is in reality on the earth part of a sphere. The adjustments that are necessary to achieve this produce inaccuracies that may affect directions, distances, shapes or areas on the map. In fact all maps tell lies.

The best type of map for introducing children to maps is the very large-scale survey map which shows only a small neighbourhood. For the early stages of mapping, you should keep to the sheet which shows the neighbourhood of the school. This is a good aid for helping the children to make the step from the reality they know to the symbolism that represents it.

Atlases are available for history and religious knowledge as well as geography and are useful because they allow private and individual study by the children. But they need to be very simple and free from overcrowding if they are to be suitable for the primary school. Atlas maps, because they are on such small scales and therefore highly conventionalized, are responsible for most of the mistaken ideas people have with regard to space relations on the earth.

Introducing atlas maps too early, or without sufficient emphasis to the reality which they represent, is responsible for most of the wrong ideas people have about the earth. Thus they think of Africa and South America as 'not far away' or see the blistering caravan routes of the Sahara as mere dotted lines, or talk of Aden 'at the bottom of the Red Sea'. We need to take care.

Wall maps are like enlarged atlas maps. They have all the disadvantages of being highly conventionalized and the added disadvantage of having to be studied from a distance. If you have the opportunity to make your own, you will be able to choose exactly what names you need to put on the map and thus avoid the overcrowding that spoils so many wall maps. The outline maps printed on black paper which takes chalk, or those printed on plastic which takes wax crayons well, may help you in this.

The purpose of globes is to show the true relationship between the land and sea areas of the earth's surface. Like maps, globes can lead to many misconceptions if introduced too early to children. The most common of these is of thinking of people in the southern hemisphere as 'upside down'. Too early use of globes also leads to the misconception of thinking of a small world. Such misconceptions, if arrived at in childhood, tend to persist into adult thinking.

For this reason it is best to delay the use of the globe until the children have sufficient knowledge to interpret it correctly. The use of the children's imagination is a useful introduction to earth study. Imagining the biggest ball they can think of gives a better concept of the earth than a 12-in. globe. Nevertheless the globe is essential for showing the shortest routes between countries and continents in high latitudes, for comparing shape and size of lands over the earth, for explaining day and night, the seasons and the wind systems of the earth. So long as the teacher is aware of the dangers of the globe and anticipates and prevents them, the globe will prove an invaluable teaching aid.

MODELS AND SPECIMENS

Models and specimens have a distinct appeal to children and attract their close attention better than a chart. Their three-dimensional character gives a better conception of reality than two-dimensional pictures.

Specimens of course are the real thing and a collection of different types of mineral and agricultural products can save the teacher lengthy explanations about those which are strange to the children. Collections of utensils of other peoples both ancient and modern, specimens of plants and small animals and insects, are useful. As a general rule, living specimens are better than dead ones. The care and attention needed to look after birds, rabbits, tadpoles, growing plants and such things give children good training in kindness and consideration for living things. Obviously if you carry this to extremes, this could turn your school into a zoo or botanical gardens, and present you with more than just space problems.

Models, as distinct from specimens, are valuable because they bring down to handy sizes things that otherwise would be difficult to study. There are two main kinds, *scale* or *semi-scale* models and *diagrammatic* models.

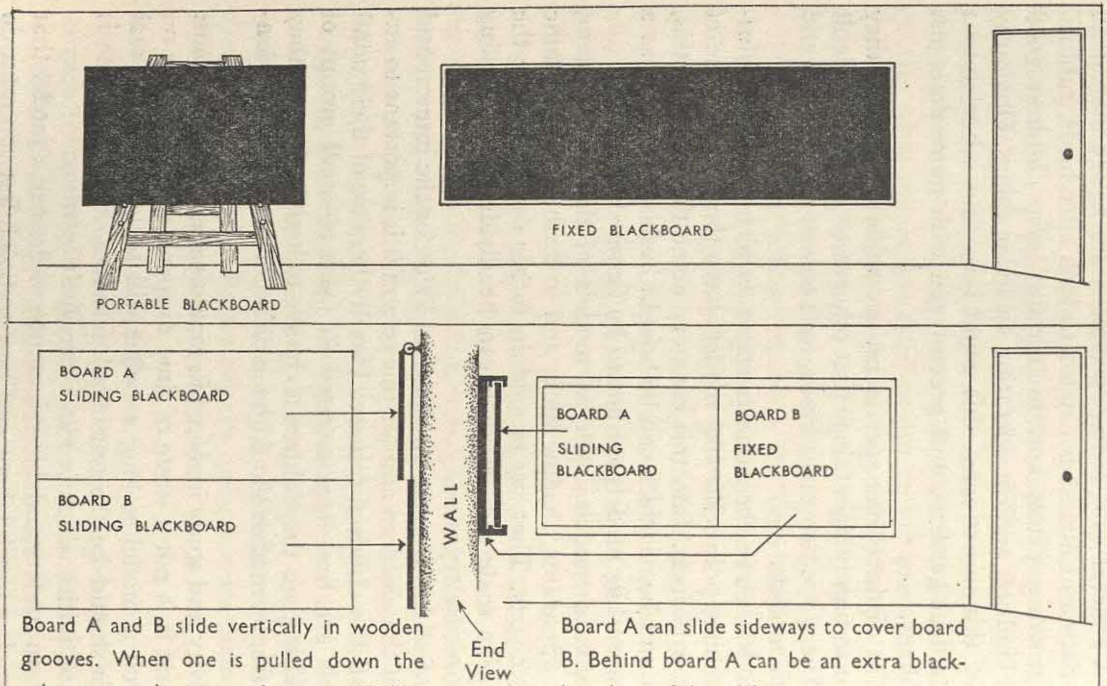
Scale models serve the same purpose as pictures. They illustrate a teaching point. *Working* models have the added value of illustrating a process. Into this category come the model trains, aeroplanes and boats which can be bought in shops or made as a hobby. *Non-working* models are not to be despised, however.

Diagrammatic models, such as models of the solar system, arithmetic apparatus, shadow sticks and so forth, serve the same purpose as charts. They try to explain rather than illustrate the teaching. Like scale models, they can be divided into working and non-working types.

Models of all kinds make an excellent focus for the interest and attention of the children and for this reason it is important to ensure that all the children can see. Usually because of their small size, models are best demonstrated in front of small groups of children. This gives the children a chance to handle them as they like. Very fragile models should be avoided or used only occasionally.

The activity and study involved in making a model can be most valuable and it is not a waste of time to spend several lessons on making such a model so long as what will be learned is of real value. This should be the test of all activities, for much time is wasted on activities which produce very little learning.

There is an understandable reluctance to destroy a model that has taken a class much labour and time to build. But you must do this unless you have adequate storage space. Anyway, it is better that next year's class should make a new model than be shown the model made by their predecessors.



Board A and B slide vertically in wooden grooves. When one is pulled down the other goes up because each is suspended by the same rope running over a pulley at each end at the top.

Board A can slide sideways to cover board B. Behind board A can be an extra blackboard or soft board for pinning up pictures or prepared as a screen for showing pictures with a projector.

Fig 26. Types of blackboard

Section B

THE BLACKBOARD

1. Consider the various types of blackboard illustrated in fig 26 and discuss the advantages of each from:

(a) The teacher's point of view.
(b) The pupil's point of view.

Discuss what would be suitable measurements for each kind. Include the height of the bottom of the board above floor level.

2. The tests of a good blackboard paint are that it should not readily come away from the blackboard, it should take chalk well and it should clean easily with a duster. Try the following recipe for home-made blackboard paint. Then see if you can make a better recipe of your own.

Black paint, well diluted with kerosene. (Use another dark colour if you prefer a board of a different colour.) Add a quantity of finely sieved wood ash until the paint returns to its original consistency. If you put in too much ash the paint will become grey. You can compensate this by adding some finely sieved soot.

Try out the various paints you have made by painting pieces of strong cardboard or plywood with them. See which paint is the cheapest to make and satisfies best the requirements of a good blackboard paint.

3. Prepare a blackboard with horizontal lines drawn on it. The lines should be spaced according to the size of writing needed by

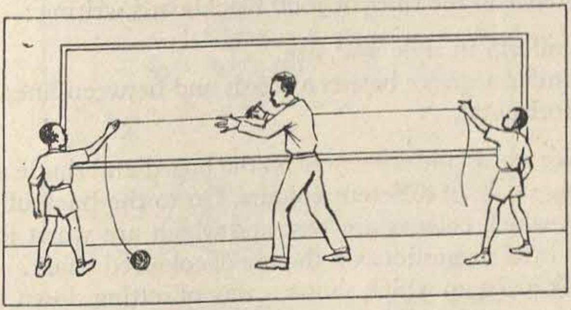


Fig 27. Putting guide lines on a blackboard

the children. Two or three inches apart is usual. Ensure that the lines are horizontal by measuring their height from floor level at each end and by stretching a string across as a guide. See fig 27. Scratch the line with a nail.

4. Look at fig 28 which shows the correct stance for writing on the blackboard at different levels. Notice the eyes are at the same level as the writing. The feet should be about 12 in. away from the wall on which the board is fixed and the arm should be only slightly bent. The wrist should be rigid, the movement of the chalk being controlled from the shoulder. Practise constantly by getting a friend to dictate passages for you to write as quickly and as neatly as you can. Criticize your blackboard writing frequently with reference to the rules of good blackboard writing:

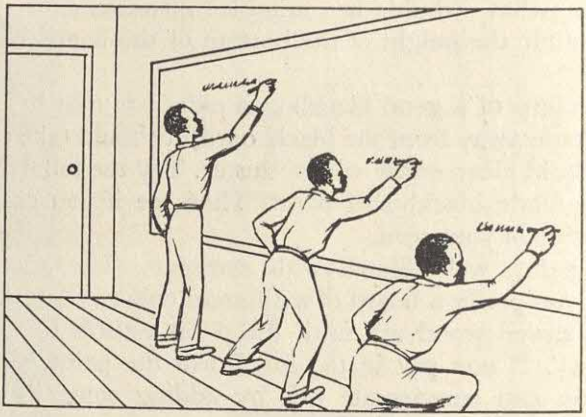


Fig 28. Stances for blackboard writing

(a) Uniform in style and size.
(b) Uniform spaces between words and between lines.
(c) Horizontal.

5. Write words and sentences on the board and shade areas on a map using chalk of different colours. Go to the back of the room and note which colours are best and which are worst for clarity. Draw up brief suggestions on the use of coloured chalk.

6. Look at fig 29 which shows a way of setting down the blackboard summary for all information lessons. The board is divided

into three vertical columns and used as shown. By keeping sketches and diagrams to the extreme right, the teacher can stand beside the illustrations and see both them and the class with one sweep of the eye. Prepare some lesson summaries in this way for different subjects and practise writing them up on the board in the same way as you would if you were teaching (see fig 30).

7. Make a habit of drawing to scale your blackboard in your lesson notes and writing your summary in full on it.

Column for new words, correct spellings, and words which crop up unexpectedly during the lesson	*Column* for lesson summary notes	*Column* for sketch maps, diagrams, illustrations

Fig. 29. Use of the blackboard for lesson summaries

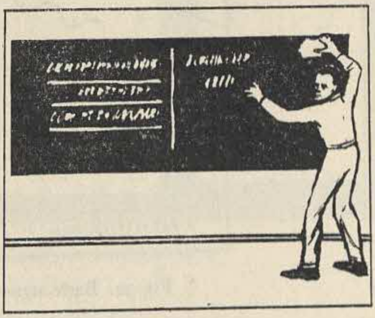


Fig 30. Using the blackboard

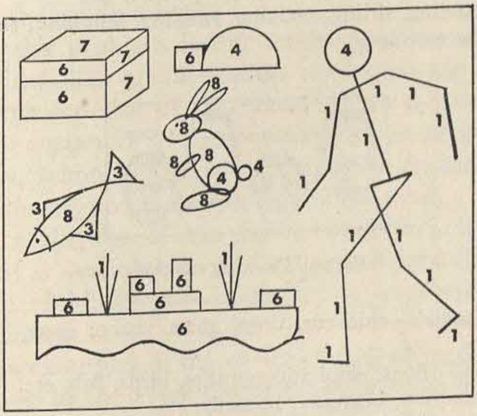


Fig 31. Pictographs

8. Good blackboard illustrations must be:

(a) Simple in outline.
(b) Not complicated with detail.
(c) Easy to draw quickly.
(d) Clearly visible from the back of the room.

These requirements can be met by drawing pictographs like those shown in fig 31. They use only the line patterns and geometrical shapes shown in fig 32. The numbers show you which shapes have been used for each part. Practise building up pictographs of the following so that you can reproduce them easily, quickly and boldly at any time:

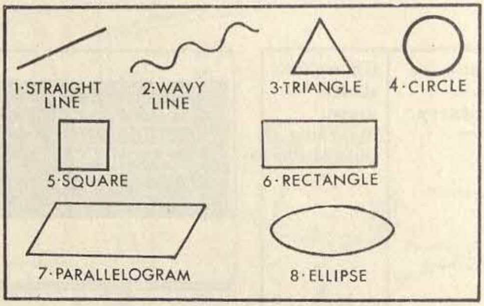


Fig 32. Basic structures of pictographs

(a) *Houses*—huts, pan-roofed houses, igloos, etc.
(b) *Household articles*—tables, chairs, pots, boxes, etc.
(c) *People*—standing, sitting, walking, running, laughing, sad, etc. (see fig 33 for these emotions).

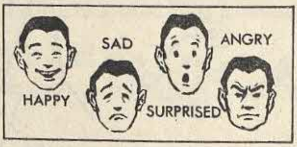


Fig 33. Drawing emotions

(d) *Domestic animals*—chickens, dogs, goats, sheep, cows, horses, camels, etc.
(e) *Wild animals*—lions, elephants, giraffes, birds, fish, etc.
(f) *Insects*—mosquito, butterfly, housefly, etc.
(g) *Transport*—bicycles, cars, lorries, trains, ships, aeroplanes, etc.

9. Trace from an atlas the outline and main rivers of the continents and countries you have to teach. Draw a square which encloses the whole outline. Bisect each side so as to form four smaller squares. Study what parts of the country lie in each small square. Memorize it. Practise drawing these on the blackboard superimposed on similar squares (see fig 34).

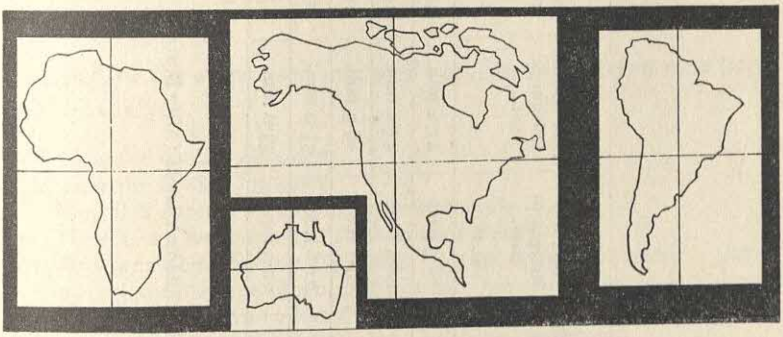


Fig 34. Aids to drawing blackboard sketch maps

TEXTBOOKS

1. Study fig 35 showing the recommended typographical standards for children's books and see if the printing used in the children's books in your school conforms to these.

2. Discuss different ways in which textbooks for the various subjects can be used in school.

3. Discuss the problem facing teachers who work in schools where large supplies of out-of-date textbooks are to hand but policy prevents renewal of the books before a fixed number of years. Suggest a plan for getting the best liaison between teachers, head teachers, school managements and the training colleges so that a co-ordinated textbook plan can be followed.

4. Study catalogues of the latest children's textbooks and compare what is available for children at school today with what you had as a child. Prepare a display in your college of good books for children.

5. Examine examples of the various kinds of textbook. Classify them according to the types discussed in Section A and criticize their effectiveness for the purpose for which they were published.

Age of Children in years	Height of letters with no up or down strokes in mm.	Space between lines in mm.	Number of lines vertically every 5 ins.	Number of letters in a line 4 ins. long	Best length of line in ins.	Best top margin in mm.	Best bottom margin in mm.	Best outside margin in mm.	Best inside margin in mm.
Under 7	3·81 mm.	6·60 mm.	12	30	5	28·5 mm.	41·2 mm.	34·8 mm.	22·4 mm.
7–8	2·82 mm.	4·32 mm.	18	38	5	28·5 mm.	41·2 mm.	34·8 mm.	22·4 mm.
8–9	2·29 mm.	4·06 mm.	20	45	3½	20·1 mm.	28·9 mm.	24·4 mm.	15·5 mm.
9–10	1·90 mm.	3·30 mm.	24	52	3¾	21·6 mm.	31·0 mm.	26·2 mm.	16·5 mm.
10–12	1·73 mm.	3·05 mm.	26	58	4	22·9 mm.	33·0 mm.	27·9 mm.	17·8 mm.
Over 12	1·52 mm.	2·54 mm.	30	60	4½	25·6 mm.	37·1 mm.	31·5 mm.	20·1 mm.

Fig 35. Recommended typographical standards for children's books (After Burt)

6. Examine examples of printed workbooks to see what they provide in the way of exercises. By considering the arguments for and against them, decide whether you would like to use them with your children.

7. Debate the motion 'Workbooks degrade the status of the teacher from being the master of the class to being the slave of the author.'

THE LIBRARY

1. Follow the steps used in a well-run library to put a new book into the shelves:

(a) How the book is obtained.
(b) How the book is classified.
(c) How it is entered in the Librarian's records.
(d) How it can be checked at stocktaking times.
(e) How it can be found by a borrower who knows only the author's name, or perhaps only the title or perhaps only the subject the book is about.
(f) How the book can be identified as library property.
(g) How a borrower may take out the book and return it.

2. Find out the proper way to order a book by post and why the author's name and the publisher need to be known as well as the title.

3. There are different systems used for classifying books but nearly all divide books into four categories:

(a) Reference Books.
(b) General Books.
(c) Biography.
(d) Fiction.

Classification systems therefore differ mainly on how they classify the section on General Books. For primary schools, a simple system is advisable and one which requires little or no training to understand it. Such a system is described by R. E. Crookall in his book *School Libraries in West Africa* and it is reproduced here:

AC	Arts and Crafts.
Bu	Buildings.
BL	Books and Libraries.
CG	Civics, Government and Current Affairs.
DS	All branches of Domestic Science.

E	English (except for books of fiction).
F	Folklore and Legend.
G	Geography.
GK	General Knowledge.
GPE	Games, Physical Education, Athletics.
H	History.
HHH	Health, Hygiene and the Human Body.
HOP	Hobbies, Pastimes.
IC	Industries and Commerce.
M	All branches of Mathematics.
Mu	Music.
NSA	Nature Study and Agriculture.
R	Religion.
S	Science (except Nature Study and Astronomy).
TC	Transport and Communications.
TA	Travel and Adventure.
U	The Universe.
V	Vernacular books.
W	Writing.

Such a system you can further classify in accordance with your own needs. For example you might want to divide the Geography Books according to continents and make Africa 1, North America 2, South America 3, and so on. Thus a book like 'Pictures from Africa and the Mediterranean Basin' by McBain would be classified as G (for Geography), 1 (because it is about Africa), M (because it is by McBain)—G.1.M.

4. Practise using with a fellow student the catalogue cards in your college library so that you can find any book even though you know only one of the following sets of information:

(a) Author and book title.
(b) Subject and book title.
(c) Classification number and title.

5. Draw up, for one of the subjects below, a reading list for students using only books which can be found in the college library. The list should give the title of the book, the author, the classification number of the book and the relevant pages.

(a) How motor cars are made.
(b) Men who influenced African development.
(c) Printing.
(d) Weather.
(e) Model-making.

6. What would you say about each of the points below as regards the qualities needed to make a good story book for children aged between eight and thirteen years?

(a) Size of print.
(b) Length of book.
(c) Length of story or stories.
(d) Vocabulary used.
(e) Use of colour.
(f) Use of pictures.
(g) Types of story that interest children.

7. If you were awarded £15 to start a library in the school where you teach, what books would you order? Make a list with the help of publishers' catalogues stating the title, author, publisher and price of each book.

8. Learn how to repair a book whose covers are coming away from the rest of the book.

9. Discuss ways and means of starting up a school library and the practical measures needed to keep it running.

PICTURES

1. Choose a picture which illustrates some activities of children, for example the large pictures which accompany an English course for infants. Make a list of the main activities shown and write them out clearly on a card. Select three small groups of children (about three in each group) and interview the groups separately as follows:

Group 1—Show the picture to the children saying you want them to look at what is going on in the picture. Cover the picture after one minute and ask the children to write down as many things as they can remember that were going on in the picture.
Group 2—Show the list of activities you wrote out on a card and take back the card after one minute. Ask them to write down as many things as they can remember.
Group 3—Read aloud to the group the list you have written down. Afterwards ask the children to write out as many of the activities as they can remember.

Compare the results of the test to see whose list is most complete and whose list is least complete.

2. Begin collecting pictures suitable for teaching from all the sources you can. Mount them on strong brown paper, sugar paper

or card of uniform size so that they will last well and can be filed easily. For methods of filing, see Chapter 9. Be sure that your pictures fulfil the A B C of good visual illustrations.

3. When using pictures in teaching, remember the following do's and don'ts:

DO . . .

Choose the best pictures you can get.
Mount your pictures on strong paper.
Label and catalogue all your pictures.
Show small pictures only to small groups of children.
Show only large pictures to the whole class.
Ask questions about the pictures you show.

DON'T . . .

Use pictures if you can show the real thing.
Choose pictures that are very detailed.
Place pictures where they cannot be seen.
Roll pictures up. Keep them flat.
Leave them on the wall for more than one week.
Let them flap in the wind.

CHARTS

1. Look out for ideas in books, newspapers, magazines and advertisements for material that will be useful for presenting in chart form.

2. Discuss the appropriate use of line graphs, block graphs, picture symbols and pie diagrams for comparing statistical information (see fig 36).

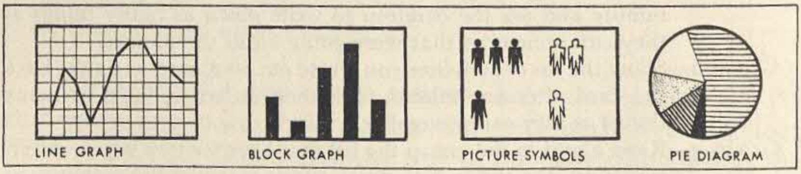


Fig 36. Methods of showing statistical comparisons

3. Make a chart to teach a point in a primary school lesson. Display it in front of your fellow students, say how you would use it and let them criticize it.

4. When using charts in teaching, remember the following do's and don'ts:

DO . . .

Make all the lettering good and clear.
Use bright, contrasting colours.
Explain to the children the symbols used and the meaning of the chart.
Let the children ask questions.
Pin the chart up after the lesson to allow further study.

DON'T . . .

Speak to the chart when teaching. Be sure to address the children.
Hurry too fast when showing the chart.
Put too much information on one chart.

FLANNELGRAPH

1. Experiment with the following materials to find which gives the best adhesion. You will find that a slight backward slope of the backing board makes all adhesion much better.

Flannelette on flannelette.
Surgical lint on flannelette.
Blotting paper on flannelette.
Sandpaper on flannelette.
Plastigraph on plastigraph.
Plastigraph on glass.
Damp paper on cardboard.

2. Make a flannelgraph board like that shown in fig 37. The board may be of plywood or strong cardboard. The hinges can be

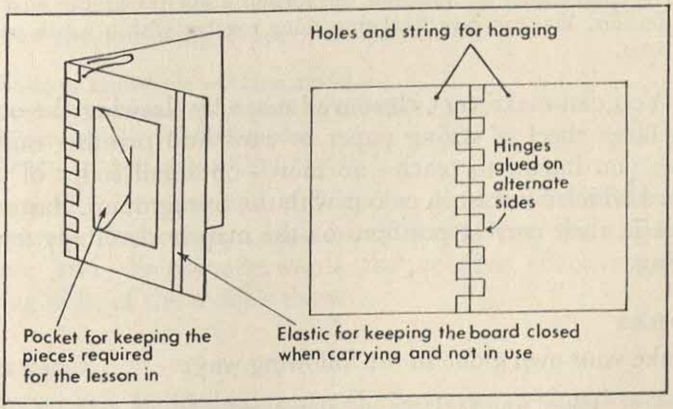

Holes and string for hanging
Hinges glued on alternate sides
Pocket for keeping the pieces required for the lesson in
Elastic for keeping the board closed when carrying and not in use

Fig 37. A flannelgraph board

of strong cloth securely glued to the board. The flannelgraph backcloth may be fixed permanently to the board in which case it should be all one colour, black or blue or yellow. If scenic backcloths are to be used, they should be pinned to the board. The elastic can be bought or cut from the inner tube of a bicycle tyre.

3. Decide on a lesson you think could be well taught with flannelgraph as the main aid. Make your own pictures for the lesson and mount them on material that will allow them to stick to your backcloth. Plan how you will build up your pictures in the lesson. Teach the lesson with student observers and invite their criticism afterwards.

MAPS

1. Maps which will get hard usage should be mounted on cloth. Here is how to do it:

(a) Cut a piece of cloth (muslin, mosquito netting or baft) slightly bigger than the map to be mounted.
(b) Soak the cloth in water and squeeze out excess moisture.
(c) Lay the cloth on a large table and stretch it tightly and evenly, pinning it to the table along the edges.
(d) Place the map on the cloth and mark where the corners will be.
(c) Sponge the back of the map with a damp cloth.
(f) Apply a starch paste to the cloth spreading it evenly all over.
(g) Carefully place the map on to the cloth ensuring that the corners are in their correct positions.
(h) Using a bottle, roll the map from the centre outwards in all directions so as to exclude all bubbles of air from below the map. Work quickly.
(i) When the map is dry, trim the surplus cloth round the edge with scissors. You can give final smoothing touches with a warm pressing iron.

2. You can make very clear wall maps by drawing the outline on a large sheet of strong paper or card and printing only the names you intend to teach—no more—on small strips of paper or card which contrast in colour with the background. Paste these names in their correct positions on the map horizontally for easy reading.

GLOBES

Make your own globe in the following way:

Select a gourd which is large and almost perfectly round. Cut it carefully in half and clean it in the usual way. Glue the two halves together again firmly. Cut a template from strong cardboard with a hole cut out in the centre exactly the size of the gourd (see fig 38). Draw a line right round the gourd using the template as a guide. Draw another at right angles. Where these lines cross is the position of the poles. Bore holes to take a rod $\frac{1}{4}$ in. in diameter bent to the shape shown in fig 38. Use the template to draw lines of longitude every 30° and also the equator. Use two other templates, one $\frac{11}{12}$ of the diameter of the first and the other exactly half. These represent the tropics and the line of 60° latitude respectively. Draw the outline of the continents using these lines of latitude and longitude as guides. Paint the oceans blue and the land masses another colour unless you prefer to leave the land the natural yellow of the gourd.

An alternative method is to buy a good round rubber balloon and mark it, using templates in the same way as above. But you will have to use one of the quick marker -type of felt-tipped spirit pens to make your lines so that the balloon is not damaged. Obviously such a globe cannot be mounted but has the advantage that you can store it in your pocket if you want.

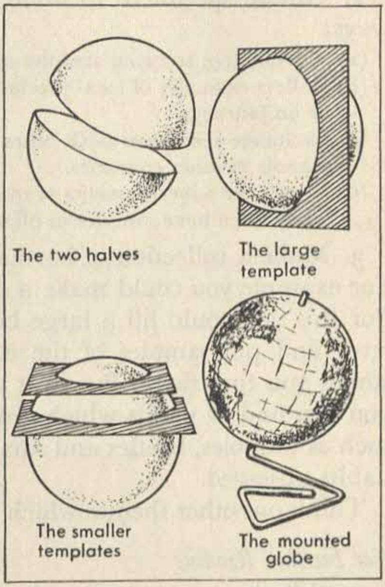


Fig 38. Making a globe

MODELS

In small groups make an example, suitable for teaching purposes, of one of the following types of model:

(a) Scale or semi-scale working model.
(b) Scale or semi-scale non-working model.
(c) Diagrammatic working model.
(d) Diagrammatic non-working model.

Select the best examples and let the groups who made them demonstrate them with a class of children. Note the children's response and discuss afterwards the relative effectiveness, as teaching aids, of the models shown.

SPECIMENS

1. In groups, build up displays of specimens to illustrate one of the following themes:

(a) Stages in the manufacture of steel, cloth, chocolate, etc.
(b) Seeds to illustrate the various methods of seed dispersal.
(c) Foods which are rich in protein, carbohydrate or fat.
(d) Mineral ores and the metals made from them, e.g. bauxite and aluminium, tin ore and tin, copper ore and copper, etc.

2. Obtain specimens to build up a collection in the following ways:

(a) Ask children to bring samples of interesting things they find locally.
(b) Collect examples of local products from the places you visit on holiday or on journeys.
(c) Exchange specimens with other schools in your own country or with schools in other countries.
(d) Watch the advertisements of manufacturers in educational magazines. They often have samples to offer free or at a very small cost.

3. Make a collection of local specimens form a special display. For example you could make a display on the theme 'Our river'. For this you could fill a large bowl or tank with water from the river and put samples of the different kinds of sand, clay and stones you find there. Put in it also the kind of weeds and slime you can find or plants which grow near the edge. Living animals such as tadpoles, beetles and small fish can be put in too and their habits observed.

Think out other themes which could be treated in this way.

For Further Reading

General Books

HAAS and PACKER	*Preparation and Use of Audio-Visual Aids.*	Prentice Hall.
W. L. SUMNER.	*Visual Methods in Education*	Basil Blackwell.
C. BEALE.	*Look and See*	Edinburgh House Press.
D. F. EBRIGHT.	*Audio-Visual Aid Book for India.*	Overseas Visual Aid Centre.
	The Year Book of Education 1960.	Evans Brothers.
A. TAYLOR.	*Equipping the Classroom.*	Nelson.
	Visual Education (a monthly periodical).	National Committee for Audio Visual Aids in Education, 33 Queen Anne Street, London W.1.
	O.V.A.C. Bulletin (a periodical for members).	Overseas Visual Aid Centre, 31 Tavistock Square, London W.C.1.
	Pictorial Education (a monthly magazine of pictures for teaching).	Evans Brothers.

Special Books.

G. F. RAMSHAW.	*Blackboard Work.*	Oxford University Press.
R. E. CROOKALL.	*School Libraries in West Africa.*	University of London Press.
E. GRIMSHAW.	*The Teacher Librarian.*	Arnold.
	Flannelgraph as an Aid to Teaching.	O.V.A.C. Publication No. 6.

8. ELECTRICALLY OPERATED TEACHING AIDS

Section A

ABOUT ELECTRICITY

ELECTRICITY can be made chemically in batteries or mechanically by generators or dynamos. Such electricity can be made to flow along wires and is therefore called *current electricity*. It is this which is used to operate all the electrical appliances that you may use in the classroom.

Current electricity can be likened to water flowing along a pipe. Any pipe or material which allows the electricity to travel along it is called a *conductor*. Most metals are good conductors, particularly copper. Anything which reduces the free flow is called a *resistance*. Anything which prevents altogether the flow or escape of the current is called an *insulator*. Rubber and most plastics are good insulators. So is air. Anything which is used to make or break a circuit is called a *switch*.

The force of the current passing along a conductor is measured in *volts*. The higher the voltage the greater the danger of 'leaks' developing and therefore the greater the care you must take with insulation. The 1.5 volts produced by a small battery is quite harmless. But the 230 volts passing through the wires of houses where electricity is installed, can kill.

The total amount of electricity produced in a generator or used by an electrical appliance is measured in *watts*. The unit of measure for the flow of electricity along a wire is amperes or *amps* for short. Thus, for example, an appliance rated at 24 watts and operating at 12 volts will require a current of 2 amps. The formula is a simple one: Watts = volts × amps. Fig 39 shows the consumption and operating voltages of a number of common electrical appliances. You can easily calculate the current required to make them work properly.

The main thing to remember about current electricity is that it must flow along a complete *circuit*. That is, the end of the wire must

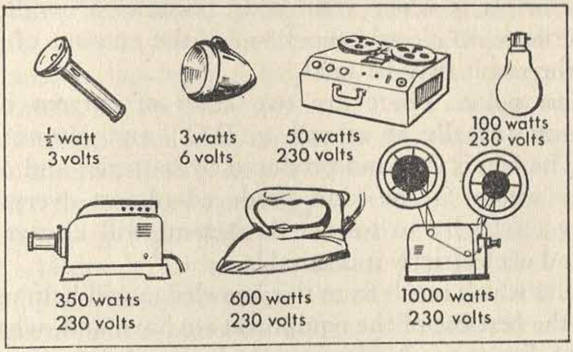


Fig 39. Electrical consumption of appliances

carry the electricity back to the starting point whether it is a battery or a generator. If you break this circuit anywhere the flow of electricity will stop. To make such a circuit possible all batteries and generators have two '*terminals*' one of which is called the positive terminal (+) and the other the negative terminal (—). These must be joined by a completely unbroken circuit of conductors if the current is to flow. The conductors which lead away from the positive terminal are usually coloured red because this is the dangerous part of the circuit if the voltage is high. The conductors leading back to the negative terminal are usually black. Every circuit should be fitted with a *fuse* which acts like a safety valve so that if the current flowing in the circuit rises beyond the safe level, the wire of the fuse melts and automatically breaks the circuit.

There is a tendency for all electricity that is generated to discharge itself into the ground as happens when lightning strikes trees, buildings or people. Even current electricity does the same. It can only be prevented by insulating the conductors so that they do not come in contact with the earth at any point for, if they do, the electricity will be dissipated into the earth. It is this characteristic that makes electricity potentially dangerous to people. So long as you can insulate yourself from the earth, you can touch the highest and most deadly voltages with impunity as the birds which sit on overhead electric wires do. Immediately, however, you touch a bare wire and are in contact with the ground, the force of electricity passes through you to earth, using you as a conductor. It is when your body becomes a conductor that you experience an electric shock and if the amount of electricity is great the result may be fatal.

One last point. There are two kinds of current electricity, *direct current* (usually shortened to D.C.) and *alternating current* (A.C.). The first is the kind produced by batteries and accumulators. The second is the kind produced almost everywhere for supplying electricity to towns. Equipment will always state for which kind of electricity it is suitable.

The rules which result from this knowledge will help us teachers to make the best use of the equipment we have and, what is more important, live to use it. Here are the basic rules:

(a) Always fit appliances only to a supply of electricity of the voltage marked on the appliance and to A.C. or D.C. current as specified.
(b) Always see that all conductors are well insulated and cannot touch each other or the ground directly.
(c) Always see that the casing or body of any equipment is well earthed.
(d) Always disconnect the supply of electricity when making repairs or adjustments. Never touch a conductor without first doing so.
(e) Never allow a big current to flow along a thin wire. Use thick wires for big currents and thin wires for small currents. Ask for expert advice if you are in doubt.
(f) Always connect red wires to positive terminals and black wires to negative.
(g) Always use fuses that are no bigger than the normal consumption of the appliances you are using.
(h) Never do anything to electrical things unless you know what you are doing.

SCREENS AND BLACKOUT

Almost any flat surface will reflect a projected picture but the colour and texture of the surface will greatly affect the brilliance of the picture. White or silvery surfaces are best and a non-shiny surface is better than a glossy one.

Commercial screens use a surface coated with tiny glass beads. These give the best reflection of all. But such screens are directional and give rather a poor view for people sitting at a sharp angle to the screen.

The problem with all forms of projection is that they are most effective only with good blackout. But blackout is difficult to achieve without considerable expense and, generally speaking, the better the blackout is the more it interferes with ventilation.

Attempts have been made to find a projection system that will work satisfactorily in daylight or conditions of limited blackout. The best answer lies in so-called '*rear projection*' where the projector throws its picture first on to one or two mirrors which then reflect it on to the back of a translucent screen. This method has two advantages. It allows the projector to be at the front of the class so that the teacher operating it is in the normal teaching position and can point to parts of the picture to which he wants to draw the children's attention, without leaving the projector. Secondly, by keeping the projection rays in a totally enclosed unit, the loss of light is minimal. The projected picture is therefore better than one projected in the normal way from an equal distance.

To get the best results from projection done in daylight or with only limited blackout, the screen should be well shaded round the edges so that no light falls on it directly and its surface is in constant shadow. For more detail see fig 50 on page 177.

FILMSTRIPS AND SLIDES

Filmstrips and slides are simply alternative methods of showing pictures, charts and diagrams. They have the advantage of being small, easily stored and handy to deal with.

Filmstrips are lengths of 35-mm. film on which are printed pictures of standard size.

Slides are individual pictures cut from a 35-mm. film. They are always mounted on 2-in. square frames. Each slide is separate and the order in which a set can be shown can be varied at will. This is in contrast to the fixed order and fixed selection offered by a filmstrip.

Because filmstrips and slides depend on their transparency for good reproduction, they must be handled with care. Never finger the face of the pictures. Always hold them by the edges. Do not let them get scratched and keep them free from dust and damp by storing them in airtight tins.

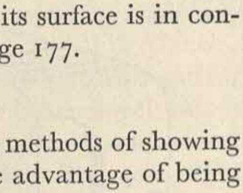


Fig 40. Filmstrips and slides

In order to use filmstrips or slides, a projector is required. The projector throws a concentration of light through the picture so that the image passes very much enlarged on to a suitable screen. The main parts of a projector are shown in fig 41. Their respective purposes are as follows:

(a) The source of light must produce sufficient illumination to throw a clear image of the picture on the screen. The heat produced by this must be dispersed either by convection or by a cooling fan.
(b) The condenser lens concentrates the power from the lamp on to the picture itself.
(c) The focusing lens is needed for making the image clear and sharp on the screen whatever the distance of the projector from the screen.

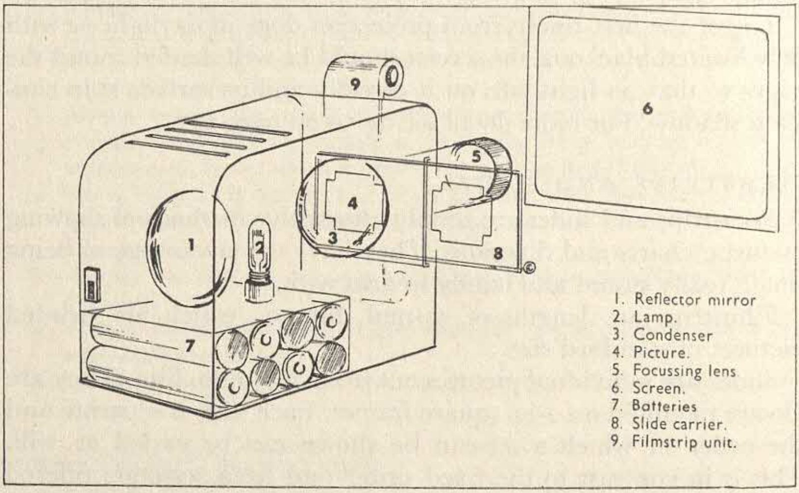


Fig 41. The filmstrip projector

There are two main kinds of filmstrip used in teaching and the techniques for using them are quite different. The first is the '*story-telling filmstrip*'. This is a series of pictures which tell a story in the same way as the picture strips which appear in some newspapers and most children's papers. Usually, these story filmstrips are accompanied by a written script which can be read aloud by the teacher as he shows the pictures. Some filmstrip-makers even produce this commentary on a gramophone record so that all the teacher needs to do is operate the projector. The same technique can be used on the guided-tour-type of filmstrip which, after all, is a kind of story. The result of this technique may be likened to an illustrated talk.

The second kind is the '*study filmstrip*'. This is not intended to be shown in the same manner as the story-telling type. Instead, each picture is used for detailed observations and study, for discussion, for arousing interest or stimulating questions among the children. Although such filmstrips are based on a theme, the links between neighbouring frames are not nearly so close as between those for story telling. Thus the teacher may select only those pictures he wants to show and dwell on each for as long or as short a time as he likes.

The notes which accompany study filmstrips are very informative and require careful study by the teacher before the filmstrip is used. It is quite hopeless for a teacher to come into the class and suddenly decide to show a filmstrip unless, of course, he is already thoroughly familiar with it.

One danger that must be avoided in the use of filmstrips and all other methods of teaching using electrical or other novel aids is that of making their use largely for entertainment or as a reward 'for being good'. Filmstrips are a teaching aid in their own right and, when correctly used, can present teaching material in a forceful visual form. They should only be used when they provide the best means of teaching and for no other reason.

MOTION PICTURES

Although motion pictures are much more expensive to buy and much more difficult to obtain and use than filmstrips, there are many schoolchildren who have seen many films but have never seen a single filmstrip. This of course is due to the popularity of the commercial cinema and of the mobile cinemas operated by the various information services.

Films have come to stay as a teaching aid in those schools provided with a supply of mains power. They have many advantages over filmstrips. These advantages are as follows:

1. Moving pictures produce an impression of reality because of their ability to reproduce faithfully the scenes and movements of real life. This is important because it should be the aim of every teacher to communicate 'reality' to his children.

2. The viewer, watching motion pictures, is drawn actively and

emotionally into the action of the film. We have already seen how powerful an effect personal involvement has on learning and it is this characteristic of films which makes the strong teaching impact associated with them.

3. Films are capable of powerful dramatic effect impossible with filmstrips. This is because, by their very nature, they have the power to create suspense, sustain rhythm or produce climaxes. The effect of these qualities can help to punch home a lesson with great force.

4. Films are not limited by time and space as we are in real life. They can whirl us into the past or the present. We can even see glimpses of the possible future. Likewise, we can, with films, fly high above the earth or dive beneath the waters of the oceans. One moment we can be in our own country, the next in another half-way round the earth. The camera can show us what our unaided eye could not possibly see. It can speed up a process like the opening of a flower so that we see it as movement, or it can slow up the performances of a high jumper so that his movements can be studied with ease. It can magnify bacteria and other objects too small to be seen normally so that we can give them careful study. Virtually the only limit on the camera is the imagination of the film-maker.

Experiments have been carried out in the United States using films to teach schoolchildren directly. Comparisons at the end of the experimental period between the learning of the children taught in this way with those taught by traditional methods have shown that film teaching gets as good and sometimes even better results than the traditional methods.

The successful use of films does not rely on one viewing only, nor in making the film merely additional to the lesson. Successful teaching through films depends on the choice of good teaching films and in using them according to the following formula:

(a) Teacher's preview of the film before he finally decides whether it is the best means or not of teaching the lesson.

(b) Verbal introduction to the film mentioning the main things to look out for in it.

(c) First showing of the film without interruption.

(d) Oral discussion of the film aimed at strengthening the right impressions gained and drawing attention to points missed in the first viewing.

(e) Second showing of film. This may be interrupted to draw attention to particular points by stopping the film, running it back or simply by cutting out the sound track momentarily to say something.

(f) Oral recapitulation of the main teaching points.

Educational films are available both in black and white or in colour. Generally speaking, colour helps where it is important to show things as they actually are. But points can often be very effectively taught by using only black and white film. Likewise, sound films are usually better than silent though a good teacher can give a good commentary with a silent film if he has studied it carefully beforehand.

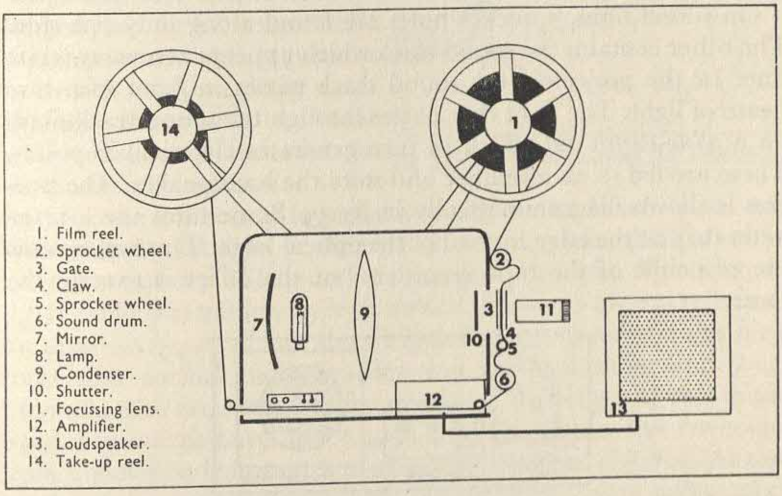


Fig 42. The sound projector

The main parts of a sound projector are shown in fig 42. You will see that it is a very complicated piece of equipment and consists of a combination of mechanical, optical and electronic components. It needs great care in its use and reliable maintenance throughout its life.

The ciné projector has the same optical components as the filmstrip projector but, in addition, has a mechanism for pulling the film at a fixed rate past the beam of light coming from the condenser lens. If the film were pulled through smoothly a blurred effect would result. Apparent movement is produced by pulling the film through in a series of jerks which allow the separate pictures of the film to stop momentarily in front of the beam in the mechanism called the *gate*. While the film is moved from one frame to the next, the beam of light is cut out by the rotating shutter. Thus what we see as a person walking across the screen is in fact a series of still pictures flashed momentarily on to the screen from the projector at a rate too fast for the human eye to distinguish them as separate. In silent films the rate is sixteen frames per second while in sound films they are projected at a rate of twenty-four frames per second. The mechanism which pulls the film at this constant speed is the *claw* and it engages in the sprocket holes seen on the side of the film.

On sound films, sprocket holes are found along only one side. The other contains the sound track which appears as a wavy white line. In the projector, the sound track passes in front of a tiny beam of light. The light that passes through the sound track plays on a *photo-electric cell* which in turn generates electrical impulses. These are fed to an amplifier and so to the loudspeaker. The process is shown diagrammatically in fig 43. Some films use a magnetic strip at the edge instead of the optical form. This system uses the principle of the tape recorder, but the effect is exactly the same.

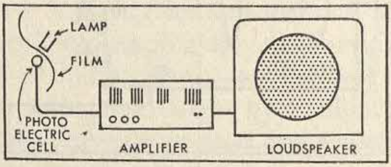


Fig 43. Getting sound from a film

TELEVISION

The basic principle of all types of broadcasting is that sounds and action may be received by microphones and television cameras respectively and turned into electric impulses. These impulses are amplified greatly by the transmitter and broadcast from the aerial as radio waves of a predetermined *frequency* just in the way that a stone thrown into a pool of water will send out waves in all directions. The difference between this analogy and that of water, however, is that radio waves travel at the speed of light, fast enough to go round the earth nearly eight times in one second, and they travel not only horizontally but in every direction. Like waves on water they tend to be deflected by solid objects like the earth, mountains and so forth. But radio waves are also reflected by certain belts high above the earth's atmosphere so that even when the curvature of the earth makes direct communication impossible, the radio reflecting layers above the earth send back the signals in the way shown in fig 44.

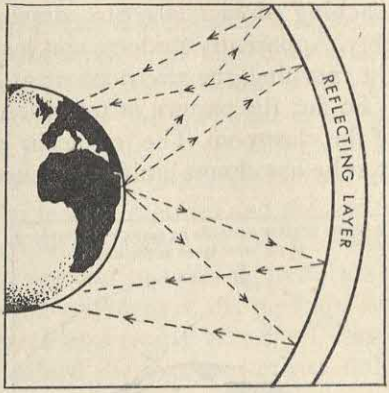


Fig 44. Radio transmission by reflection

The characteristics of radio transmissions are such that long waves and low frequencies are limited in their range while short-waves and high frequencies can reach any part of the earth if they start with sufficient power. The only limitation on short-wave transmission is the state of the reflecting layers above the earth. When these are broken up by sunlight as they are in the daytime, their effect is greatly weakened. They are at their best at night. However, if the frequency is made very high indeed the waves are not reflected by these layers at all but shoot right through them and out into space. For normal radio broadcasting, short, medium and long waves lengths are used, but for television, very short or very high frequency waves have to be used and this limits the coverage from a television transmitter to about the range of visibility. At the height of the normal aerial used, this is about thirty miles only. It is this that makes the building of an adequate television broadcasting network to cover a country such an expensive thing.

It is likely that experiments carried on in Europe and America will greatly increase the effective range of television. It is now possible to transmit a television programme in one country to another by bouncing the signals off an artificial satellite stationed somewhere above the two countries. The technicalities of reception from this are possible only for a television station and the programme must be relayed in the usual way. But the range of transmission within a country can be increased enormously by taking the television transmitter very high. This has been done by using an aeroplane as the transmitter. By flying at a height of about five miles above the earth the range of transmission has been increased from the normal thirty miles to two hundred miles.

Television has been proved to be an effective aid to teaching all kinds of subjects. It is said to be equally successful whether teaching physics, algebra, dressmaking, composition or psychology. Apparently students can learn from television just as well in the morning, the afternoon or at night.

So far, the pattern of television teaching has been an extension of the classroom. The teacher is just like any other teacher except that he has almost limitless resources, both financial and technical, and he is chosen because of his experience and ability as a teacher. But the technique of his teaching is similar to what he would use in a normal classroom, namely demonstration, explanation, illustration and so forth. The main lack is in the children's inability to make a direct response to the television teacher. But a good teacher can anticipate 90 per cent of the problems children will find in the lesson he teaches and, by dealing with these, he can remove many of the disadvantages associated with a system of teaching limited to a teacher to pupil direction only.

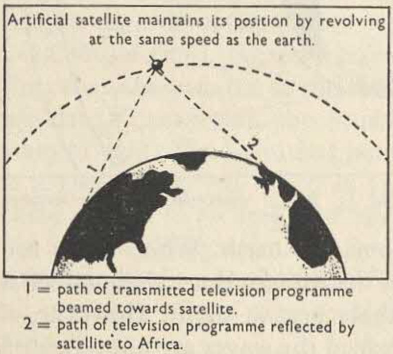

Artificial satellite maintains its position by revolving at the same speed as the earth.
1
2
1 = path of transmitted television programme beamed towards satellite.
2 = path of television programme reflected by satellite to Africa.

Fig 45. Television from America to Africa

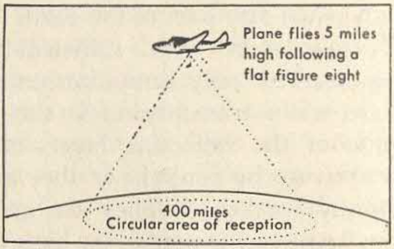

Plane flies 5 miles high following a flat figure eight
400 miles
Circular area of reception

Fig 46. Increasing range of television

Research into the advantages of television teaching has shown that its effect upon pupils and retention of subject matter by them compares very favourably with traditional teaching methods. Moreover the studio teacher can reach far greater numbers of pupils than the classroom teacher can and there are possibilities that television teaching may be an answer to the problem of education in countries which have an ambition to expand greatly their programme of education but have a totally inadequate body of trained teachers to meet the need.

Television offers to schools a window on the world through which children can look and enter into the privacy of such places as hospital operating theatres or experience the excitement of supersonic travel. They can look through powerful telescopes at the wonders of God's creation or marvel at the activities of disease microbes under the microscope. They can see what scientists only a few years ago would have given much to see and they can do so in the comfort and security of their own classroom. Television shares all the advantages of motion pictures and the added advantage that it needs no operator. Whether or not television becomes more extensively used as an aid to teaching in Africa is largely a matter of finance. The effectiveness of the medium has been proved and the technical problems nearly all solved. Some governments think they cannot afford the expense; others think they cannot afford to lose the opportunity.

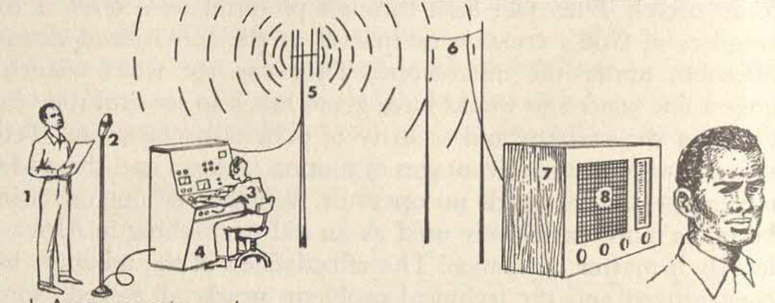
RADIO

The number of radio receivers owned in Africa has increased enormously in the past ten years as the result of transistors which allow a radio to operate from torch batteries. Radios, once the possession of only a few, have now become common-place amongst many. But if you want to listen to schools broadcasts, you will need to choose the radio set you buy with care, for it must be able to give good sound reproduction over the whole of the classroom without the volume control being turned fully up. Listening will also be improved by ensuring that you have a good aerial and earth. It should also go without saying that you need to be able to tune the set properly.

The process of broadcasting and receiving is shown diagrammatically in fig 47. To get the best from the schools' broadcasts which the Schools Units of most broadcasting corporations produce, you need to know what co-operation is required of the teacher. It falls naturally into three periods as follows:

1. *Preparation before the Broadcast*

This includes the checking of your wireless to see that it is in satisfactory working order and that signals from the station you will be listening to are coming in loud and clear. It also means studying the written notes supplied by the broadcasting agency for the broadcasts which you are going to use and any explanation or preparation that is necessary for the class before the broadcast begins.



1. Announcer emits sound waves.
2. Microphone receives sound waves and changes them into electrical impulses.
3. Broadcast controller modulates the impulses from the microphone.
4. Transmitter amplifies the electrical impulses greatly.
5. Transmitting aerial discharges the impulses on a fixed wavelength.
6. Receiving aerial catches the transmission.
7. Radio receiver selects the wavelength wanted.
8. Impulses received are amplified and fed to the loudspeaker. Listener hears the announcer.

Fig 47. Making and receiving a broadcast

2. *Action during the Broadcast*

Usually the teacher's notes produced for the broadcast will draw attention to anything the teacher may be called upon to do or show to the children. It is important that the teacher should be ready at the moment when these things are required otherwise the smooth flow of the lesson will be interrupted.

3. *Follow up after the Broadcast*

The notes for some broadcasts make suggestions of things which the teacher and children may do after the lesson. Even where these are not given, you should remember the value of punching home a lesson by appropriate activities such as discussion, written work, drawing, dramatizing or even full-scale project work. It is the failure by teachers to prepare for and follow up broadcast lessons that makes these lessons of less value than they might be in many schools.

Broadcasts used for teaching can be divided into three types, namely, *core* broadcasts, *enrichment* broadcasts and *direct teaching* broadcasts. Core broadcasts are those which set out to stimulate a class into useful activity that may take them a number of weeks to complete. They are suggestive rather than formal and depend for their success on intelligent co-operative teachers.

Enrichment broadcasts are similar to the documentary film or story-telling filmstrip. They try to provide background to the children's general experience by such methods as interviews, eye-witness talks, plays and so forth.

Direct teaching broadcasts on the other hand are much more specific. They choose a series of lessons from the syllabus used throughout the country and then use a radio teacher to teach it. The class teacher's job in these circumstances is to support the radio teacher throughout the lesson and provide the follow up which such broadcasts demand.

The practical question of where to hold broadcast lessons is often a problem. The ideal is that they should be held in the children's own classroom. But the necessity for separate permanent aerials fitted for each classroom may make this impracticable. Two alternatives offer themselves. Either the school can be wired for extension loudspeakers. Thus when a teacher wants a broadcast, he switches the radio on in the headmaster's office and plugs in the extension loudspeakers to the socket in his classroom. Or one classroom may be kept for all broadcast lessons so that when a particular class wants to listen to a programme, they must change places with the children who normally occupy the listening-room. If this idea can be taken a step farther and a listening-room can be provided which does not need to be a classroom as well, so much the better. At all events, the room used for listening should be as large as can comfortably seat the whole class and should be situated in a quiet part of the school.

THE TAPE RECORDER

The tape recorder is a piece of precision electronic equipment that must be treated with care. But again, thanks to the transistor, tape recorders can be purchased now for about the same cost as a radio. Such machines are fully portable and will operate inside or outside the classroom and are quite independent of any electrical supply apart from their own torch batteries.

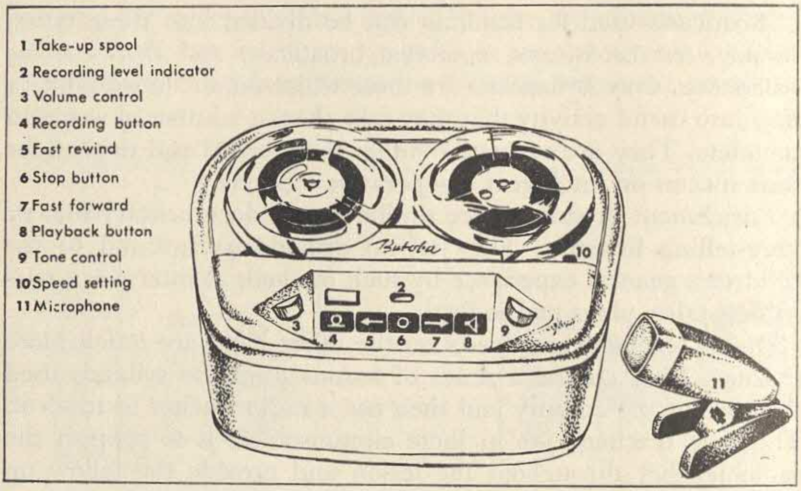


Fig 48. The tape recorder

The main parts of a tape recorder are shown in fig 48. A recording is made by the electrical impulses coming from the microphone being amplified and used to energize the electro-magnet in the recording head. This magnet produces an identical but invisible pattern of magnetic forces on the compound with which the tape is coated. When the recording is to be played back, the tape, as it passes the play-back head, energizes the electro-magnet in it. The electric current thus produced is amplified and fed to the loudspeaker. Thus we hear exactly the same sounds as originally were picked up by the microphone. When a recording is no longer wanted, it can be removed from the tape by passing the tape across the erase head which is another magnet producing a non-varying pattern. Tape with a uniform pattern like this, produces no sound on play-back.

Most recorders have two or three speeds at which the tape can be passed in front of the recording or play-back heads. You should choose the fastest for high-quality recording, but even the slower speeds will give good results for ordinary work.

In the classroom, the tape recorder can be used in two ways, either actively or passively. When used *passively* it performs like a radio or a gramophone, faithfully reproducing sounds made in other places or at other times. Plays and music can be listened to or talks from people who could not possibly visit the school can be heard. Correct pronunciation can be repeated again and again by the machine because it never gets tired.

Used *actively*, the tape recorder becomes a tool for the children. They can hear themselves as others hear them and they can work to produce material for the machine. For example the work required to produce a play or talk for recording benefits the children greatly, first as they prepare for it and again when they listen to themselves. This experience of performing and then listening critically to the recording is highly educational. It is lack of this critical listening to ourselves which makes people sometimes say, 'If only you could hear yourself!'

The adaptability of the tape recorder for passive or active use is its great advantage over other teaching aids. The following list gives some idea of the ways in which it can be used. All of them are suitable for either active or passive use.

(a) *News bulletins* of current affairs recorded either from the radio or by the teacher of selected news items of value to the children. This technique can be extended to present an imaginary news broadcast for any day important in history, but it requires intelligent imagination.

(b) *Interviews* with people of interest such as doctors, magistrates and the like. This technique can also be extended, like the news bulletin, to deal with imaginary interviews with historical figures, e.g. David Livingstone, Aggrey, etc.

(c) *Discussions* on important matters by a small group of well-informed people can make a useful contribution to knowledge and the technique of educational discussion.

(d) Recorded *quizzes* between two teams using questions based on lessons taught to the children are valuable both in the active process of recording and in the passive state of listening to the play-back. This method provides an interesting and perhaps novel way of preparing for examinations.

(e) *Documentary programmes* on a subject of general interest to the children can be recorded from the radio and replayed to them. Alternatively the children can work together to produce a documentary programme for themselves. The research, scriptwriting and producing of the programme provides most useful educational experience.

(f) *Plays* provide perhaps the most sophisticated use for the tape recorder in that they call upon skills of comprehension, interpretation and reading for performing the play. In cases where the children produce their own plays they call for ability in organization and tape editing. But perhaps their greatest value lies in their call for and development of a lively creative imagination.

(g) Recordings of *musical works*, both vocal and instrumental provide sound musical training so long as the children are taught to listen critically.

(h) Use of the tape recorder for *speech training* and choral speaking help to establish habits of careful speech.

The value of the tape recorder in the classroom is not for preserving sounds for eternity but to aid learning. Thus like tree blossom, tapes which have served their purpose should disappear so that the fruit can follow.

THE GRAMOPHONE

Of all the mechanical aids to teaching, the gramophone has had the longest history in Africa. But its potentials have rarely been used, whether in the early days of the hand-wound, one-speed, megaphone amplified type, or the modern four-speed, transistorized record player. The reasons for this were partly due to the failure by teachers to appreciate the potentials but, admittedly, more because of the failure of manufacturers to produce suitable records.

A gramophone record is made from a plastic disc on which tiny grooves have been cut to form a flat spiral in which the gramophone needle runs as the record spins round. These grooves are not smooth but are rough on the sides and bottom. They therefore cause the needle to vibrate as it runs along the groove. This vibration can be led to a mechanical amplifier like that found on non-electric gramophones. Or it can be changed into electric impulses by the kind of pick-up head found on electric gramophones and amplified either with the gramophone's own built-in amplifier or by using the pick-up sockets of your radio.

Formerly all records were made to be played at 78 revolutions per minute (r.p.m.), but now they are made for slower speeds so that more can be recorded on each side of a record. Moreover, the grooves are made smaller so that there are many more of them per inch than on the 78 r.p.m. records. For these *micro-grooves*, a specially fine needle is required. Permanent damage can be done by using the wrong kind of needles.

The value of the gramophone in school lies in its ability to repeat faithfully again and again exactly the same sounds without tiring. It can also bring to the ear of the children expertly performed works of speech and music. Records are available which can help in speech training and language work in English and other foreign languages. Many plays of literary quality are available in record form and so also are stories for younger children. There are records of all kinds of music which can be used in school to teach musical appreciation or singing or can be used to provide marching music for going into school from assembly or other rhythms for activities in physical education. Some teachers have found that pleasant music played during practical lessons like art and craft not only helps to reduce needless chatter, but actually improves the speed and quality of the children's work. Some of the records produced for teaching English, which give glimpses of life in an English family, would be useful for geography lessons on Britain. Similarly, a cowboy song might add colour and reality to a lesson on ranching. A Swiss yodelling song could give flavour to a lesson on Switzerland and do what no description could do to explain what yodelling is. National music like that of the bagpipes of Scotland, or those forms of music which are popular in various parts of Africa, could help to create an atmosphere for some lessons that would be most valuable.

Section B

ABOUT ELECTRICITY

1. Comb your hair vigorously with a plastic comb and see what effects you can produce with it on small pieces of paper. How long do the powers of the comb continue? What effect does touching the ground have on the comb's powers? What do you think happens to the electrical charge when you bring it in touch with the earth? Is this kind of electricity of much use?

2. Find out from an encyclopedia how electricity is produced in a battery and a dynamo. Examine an old torch battery and a bicycle dynamo after you have read the articles and see if you can identify the parts mentioned.

3. Calculate the current required by each of the appliances shown in fig 39 on page 159.

4. Examine as many electrical appliances such as radios, bulbs, batteries, projectors, etc., as you can and look for the marks which tell the amount of electricity they consume or produce and whether the supply is D.C. or A.C.

5. Practise, under the watchful eye of someone who knows all about electricity, some of the following things:

Changing electric light bulbs.
Changing an electric plug on an appliance to make it work off a different socket.
Wire an electric switch correctly.
Change a fuse correctly.

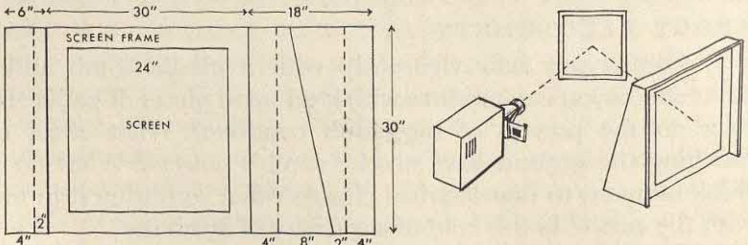
6. Find out for what the following are used:

A transformer.
A battery charger.
A battery convertor or vibrator.

SCREENS AND BLACKOUT

1. Compare the clarity and brightness of a picture projected on to different kinds of surface—rough, smooth, matt, shiny, coloured, light, etc. Compare also the types of surface used for screens—white, silver, glass-beaded, etc.

2. Make a simple rear projection screen of the kind shown in fig 49. Cover the screen with tracing paper, or tracing linen if you want a stronger job. The frame for the screen and the side and top pieces may be cut from plywood or hardboard. Hinge them to the



1. Cut out the screen frame, side supports and top shade as shown above. Hinge the side pieces and top to the frame along the dotted lines with cloth or metal hinges.

2. Set up the projector, mirror and screen in the way shown. The projector should be on the same level as the centre of the screen.

Fig 49. A simple rear projection screen

screen with cloth or metal hinges. Hang the mirror on the back-wall and adjust the angle of the projector until you get a good picture on the screen.

A more ambitious screen can be made if you follow the principles shown in fig 50. In this case two mirrors are used and projection is from the side. The arrows show the path of the projected picture until it falls on the screen. You can find the size of mirrors needed by trial and error. The size of the screen is best kept fairly small; 24 in. square is quite satisfactory.

3. Work out a system for blacking out your school classroom which will give satisfactory blackout easily, quickly and at not too great a cost. Fig 51 may give you some ideas.

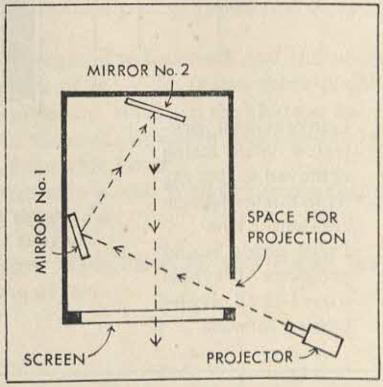
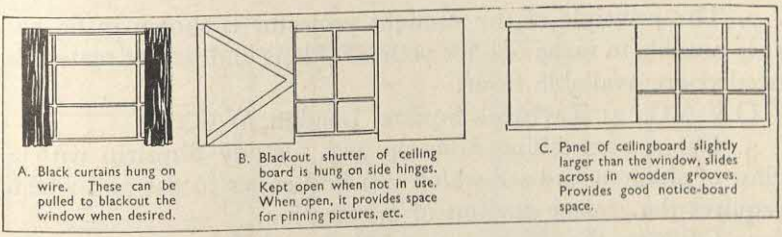


Fig 50. Plan of two mirror rear projection screen



A. Black curtains hung on wire. These can be pulled to blackout the window when desired.

B. Blackout shutter of ceiling board is hung on side hinges. Kept open when not in use. When open, it provides space for pinning pictures, etc.

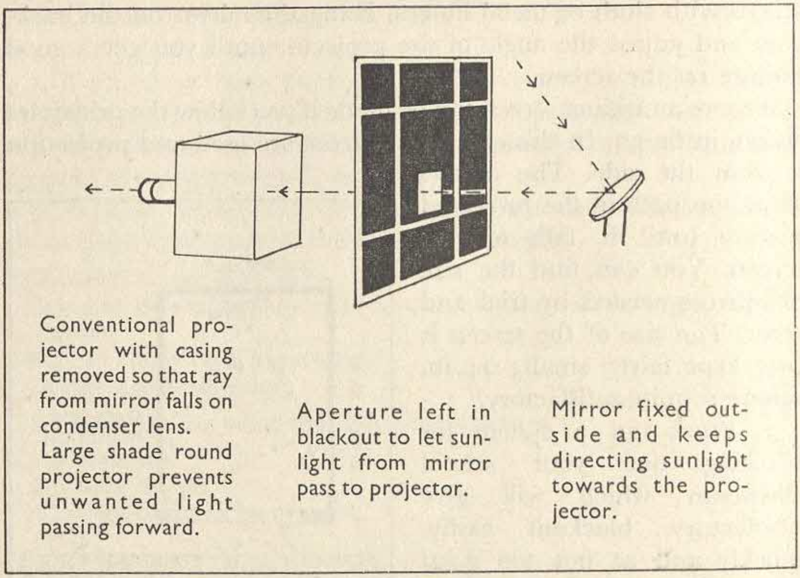
C. Panel of ceilingboard slightly larger than the window, slides across in wooden grooves. Provides good notice-board space.

Fig 51. Three methods of blackout

FILMSTRIPS AND SLIDES

1. Practise operating a filmstrip and slide projector. These can be operated by car battery power, electric mains power, kerosene or sunlight. If you are buying one for your school, you must be sure to get one of the correct kind for your needs. Manufacturers' catalogues will give the prices of the various kinds and all the refinements and accessories that are available for them.

What rule would you make for putting a filmstrip or slide into a projector in order to get the projected image the right way round on the screen?



Conventional projector with casing removed so that ray from mirror falls on condenser lens. Large shade round projector prevents unwanted light passing forward.

Aperture left in blackout to let sunlight from mirror pass to projector.

Mirror fixed outside and keeps directing sunlight towards the projector.

Fig 52. The principle of the sunlight projector

2. The principle of the sunlight projector is shown in fig 52. It is possible to make one for yourself. Plans and lists of materials needed are available from:

O.V.A.C., 31 Tavistock Square, London, W.C.1.

3. Use a story-telling filmstrip and a study filmstrip with a class of children and see which you find easier to use and which requires the greater amount of preparation.

4. Compare the effectiveness of black and white filmstrips with coloured ones on the same subject.

5. If you have a 35-mm. camera try making a planned series of photographs on coloured films. This will give you a set of transparent slides which will be the equivalent of a filmstrip. The following points should help you:

(a) Decide on the subject of the filmstrip and decide whether it is to be a story-telling strip or a study strip. Possible subjects might be 'Life in my Training College', 'Occupations of the Neighbourhood', 'How to make Glove Puppets', etc.

(b) Write out a preliminary commentary if it is to be a story-telling strip. If it is a study filmstrip, write down the teaching points you want to get across to the children.

(c) Make a list of the pictures which you will need to take if you are to illustrate the commentary.
(d) Photograph the scenes you have decided on.
(e) Send the film away for processing. It will come back to you as a set of slides.
(f) Arrange the slides in the order you planned they should be shown in and project them for a friend whom you have invited to view them. As you project each slide, read the appropriate part of your script to your friend.
(g) Discuss with your friend the effectiveness of the pictures and the notes you have made. Rearrange the order of the slides if you think it will help and change the script too if necessary. When all the changes have been decided, number the slides in the order in which they have to be shown and rewrite your notes in a suitable form.
(h) Pack the slides with a copy of the notes in a box. Write the name of the filmstrip on the box and store for future use.

6. Discuss the relative advantages of filmstrips and slides for use in teaching.

MOTION PICTURES

1. If you can obtain different types of film try to identify them by comparison with those shown in fig 53.

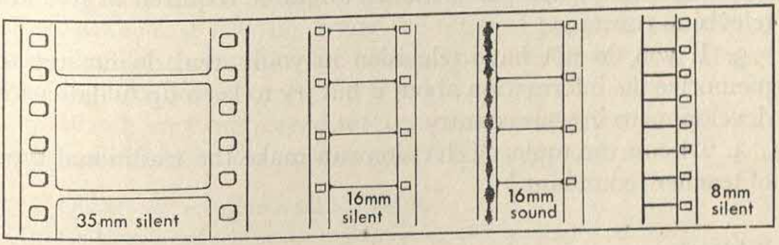


Fig 53. Types of film

2. Look carefully at every sixteenth frame of a silent film and you will see the state of the action at every second. How many frames would represent the action per second on a sound film?

3. The following points will help you to decide the educational value of a film and thus to choose only the best for your children.

(a) *Content.* Does it contain too much or too little information for the age of the children for whom it was made? Is it suitable for your children in content?

(b) *Treatment.* Is the information presented in an interesting way? Is it easy to understand? Will your children understand? and enjoy it?

(c) *Effect.* Is the teaching effect on the children strong and memorable or is it weak and likely to be quickly forgotten?

(d) *Sound.* Is the sound track clear and easy to understand. Do sounds like music help or hinder? What about the use of real sounds on the film when it depicts aeroplanes, trains, animals, etc? Should these be incorporated or should there be only a spoken commentary?

4. Watch and compare as many educational films as you can. Classify them into the descriptive or study categories.

5. Familiarize yourself with the formula for the class use of films outlined on page 164.

6. Study and identify the parts of a real ciné projector by comparison with those marked on fig 42 on page 165.

TELEVISION

1. Study the advantages of films as an aid to teaching and remember that television shares all of these. Study the techniques of using a radio broadcast and remember that these same points apply to television programmes produced for schools.

2. On a map of your country draw circles of 200 miles radius to see how many aeroplane studios would be required to give full television coverage.

3. If you do not have television in your area, do not try to memorize the information about it but try to keep up to date with developments in your country.

4. Discuss the topic, 'Television can make the traditional type of teacher redundant.'

RADIO

1. Practise tuning your radio set to a given wave length or radio frequency. Study also the use of the various sockets at the back of your radio such as aerial, earth, pick-up, etc. If it is a battery-operated set, practise changing the batteries. Learn at the same time the importance of punctuality with regard to programmes because 'television and radio wait for no man'.

2. Prove that radio reception is affected by the way you set up your aerial when the normal inverted L type is used. Do so by selecting a broadcasting station from which you normally receive

only a weak signal and find the effect on the strength of the signal coming in by varying the following:

(a) The total length of the aerial.
(b) The height of the horizontal section of the aerial above the ground.
(c) The direction of the horizontal section of the aerial in relation to the geographical direction of the broadcasting station.

What rules would you make as the result of your experiment for fitting an aerial for the radio which will be used for listening to your school's broadcasts? Remember, when you do fit an aerial, do not put it near trees or let it touch the building directly.

3. A good earth improves reception. Provide yourself with one in the following way. Obtain a length of fairly thick wire, long enough to reach from your radio set to the ground outside. Fit a plug on one end which will fit into the earth socket of your radio. Solder the other end to a kerosene tin. Bury the tin in the ground and fill it with soil. Such an earth will be most effective if the soil around it is kept damp. In the dry season, it will remind you to water the area if you plant flowers in the tin.

4. Send for the literature about schools broadcasts in your area to the Organiser for Schools Broadcasting at the address of your regional broadcasting corporation or Ministry of Education offices as the case may be. Study the types of programmes offered and identify those that are either core, enrichment or direct teaching broadcasts.

5. Watch an experienced teacher take a school broadcast with a class of children. Comment on the following points:

(a) Quality of reception from the radio.
(b) Children's concentration and intensity of listening.
(c) Effect of the broadcast on the children as evidenced by their interest, attention and response.
(d) Evidence of learning resulting from the lesson.
(e) Activities of the teacher before, during and after the broadcast.
(f) Whether or not the same information could have been as well taught by the classroom teacher in the same time and using his own resources.

6. Take a broadcast lesson with a class of children and let your colleagues criticize it in the same way as in 5 above.

7. Discuss the role of radio and television in the educational programme of rapidly developing countries.

THE TAPE RECORDER

1. On a real tape recorder, try to identify the various parts shown in fig 48 on page 172. Practise operating the recorder by carrying out the following tests, but read the maker's operating instructions carefully before you begin:

(a) Record speech, singing and music using the microphone.
(b) Record speech, singing and music from the radio using the extension loudspeaker sockets of the radio and the pick-up sockets of the tape recorder.
(c) Record a gramophone record played on an electric record player by plugging the pick-up leads of the gramophone into the pick-up sockets of the tape recorder.
(d) Play back all your recordings and compare their relative quality. Note which of them sound most like the original and consider the cause of any that may be disappointing.

2. Record on tape a few of the greetings of your tribe and play them back to some of your fellow students who do not speak your language. See how long they take, hearing them repeated again and again, before they can say them accurately and fluently. Take note of how little effort this has required of you the teacher.

Repeat the experiment but this time record a song that is not known by some of your colleagues and see how quickly and effortlessly you can teach them to sing it well.

3. The following points will give a little help in the most difficult type of programme to produce, the play. Study them and then set about producing a play on an educational subject such as *Life in my Home in Baffin Land*, *Moses before Pharaoh*, *The First Europeans in Our Land*, or *The Autobiography of a Toad.* This last subject lends itself to an imaginative presentation of the life cycle of the frog or toad using human voices for those of the toad and his friends and enemies at the river. The possibilities for other educational subjects presented in play form are almost limitless for, when you have exhausted your imagination, there are always stories from books which you can dramatize.

(a) Write out the story of the play first as a brief narrative. Then write it out in full script form with parts to be read by the actors and by the announcer or narrator. Keep the number of actors with speaking parts to as few as possible because voices without faces are difficult for children to recognize. Use people's names freely in the script to help identification.
(b) Choose the actors who will take part, paying special attention to the quality of their voices when recorded. Each must have a voice which

must be clearly distinguishable from the others and yet be easy to hear and understand.

(c) Make clear with the aid of sound effects and the narrator's introductory comments, who is speaking, where they are, what they are doing and why they are doing it. These points can also be made clear by a well-written script.

(d) You can either record the play without a break as is done in a 'live' broadcast, or you can record it in separate scenes and then edit the final production by cutting, fading and mixing with background music to get whatever effects you want.

(e) Remember to appoint people to the production duties such as script writing, operating the tape recorder, and sound effects. The chief producer's duties are to ensure that the actors are placed well in relation to the microphone and that the whole recording runs smoothly. Do not be too ambitious to begin with. A five- or ten-minute play requires a lot of work.

4. Record the following sound effects artificially using the methods suggested in fig 54 and see how real they sound on playback. Experiment with further ways of producing sound effects you may want to use in plays. The reason for faking sound effects is two-fold; it is inconvenient to get the real sounds when they are needed and certain real sounds are not recognizable as the real thing when they are played back. Faked sounds are often much more realistic.

Opening and shutting doors	These can be recorded from the real thing, but the handle turning when opening should be exaggerated. It helps too if the door is in need of a little oil.
Footsteps	A school rubber held in each hand can be made to 'walk' on a table if the ground is supposed to be hard, or on a little sand or gravel placed at the bottom of a cardboard box for other types of path.
Marching	A good number of pebbles in a cardboard box shaken to a marching rhythm will give the effect.
Horses	Plastic cups striking the table top or appropriate surface to the rhythm of trotting or galloping are very realistic.
Wind	Whistle with your teeth closed and vary the force with which you expel your breath.
Rain	Record the hiss from a pressure lamp together with continuous drips from a tap.
Thunder	This is best recorded from the real thing during a storm.
Lapping water	Draw your hand gently through a bath of water. Use a spoon rhythmically for paddling.
Rivers	Place a rubber tube on to a water tap and lead it into a kerosene tin tilted in a bath about half full of water. Run the tap until the tin is full. The force of the river can be varied according to the force of the taps and consequent overflow from the kerosene tin.
Seashore	Fill the bottom of a cardboard box with sand and gravel. Tilt the box rhythmically, fast to give the effect of the breaking wave and then slowly as the wash drains backwards again.

Fig 54. Methods of Producing Sound Effects

THE GRAMOPHONE

1. Stick a strip of white paper radially on the turn-table of your gramophone. Start the gramophone and when it has gathered speed, count the number of revolutions the turn-table makes in one minute. Use a stop-watch for accurate timing. If your gramophone is a single-speed clockwork machine, adjust the speed until you get it to exactly 78 r.p.m. If you have an electric machine it may have four speeds 78, 45, 33 and 16 r.p.m.

2. Examine with a magnifying glass the grooves of a 78 r.p.m. record. Compare what you can see between those at the very beginning of the record at a point before the place where the sound starts and those in the main part of the record. Can you see the physical source of the sound?

Repeat this examination with long playing records of different speeds. Can you see the roughness in the grooves as you could with the 78 r.p.m. record?

3. Compare with a magnifying glass the needle used for a 78 r.p.m. record with that used for micro-groove records. What differences do you see?

4. Make a comparison between the quality and accuracy of singing of two classes, one of which is taught a song with the aid of a good record and the other taught the same song by traditional methods.

5. Compare the tape recorder and gramophone as teaching aids and assess which is of greater value.

6. Study manufacturers' catalogues for records of educational value.

For Further Reading

General Books

See list at the end of Chapter 7.

M. SIMPSON.	*Film Projecting without Tears and Technicalities.*	National Committee for Visual Aids in Education.
H. DIEUZEIDE.	*Teaching through Television.*	H.M.S.O.
D. MILES.	*Radio as an Aid to Teaching.*	Ministry of Education, Kaduna, Nigeria.
	Schools Broadcasts and How to Use Them.	Nigerian Broadcasting Corporation
J. WESTON.	*The Tape Recorder in the Classroom.*	National Committee for Visual Aids in Education.
P. STREVENS.	*Aural Aids in Language Teaching.*	Longmans.

9. PRACTICAL PROBLEMS WITH TEACHING AIDS

Section A

MAKING YOUR OWN MAPS, PICTURES AND CHARTS

THE most common excuses made for not using teaching aids are that they are difficult to obtain and expensive to buy. Both of these objections can be overcome if you make your own. A few simple materials, a moderate imagination and a lot of care are all you need to set up in business as your own visual aids producer. The following points should be helpful:

1. *Copying*

Two things you will need to be able to do well are to copy exactly and to enlarge accurately. Making one or two copies is best done by tracing or by using carbon paper. But where many copies are required it is worth making *stencils* from celluloid, thin sheets of metal or even plywood or hardboard. Such stencils can be used for the lettering on charts and for drawing pictures or maps in children's notebooks. A quicker way of producing pictures or maps for children's notebooks is to make stamps similar to those used in offices for printing the address or for stamping the date. These can be prepared in the way described on page 198. Hundreds of copies can be made with such stamps.

2. *Enlarging*

Enlarging is frequently needed in making visual aids, because very few book illustrations or maps are of a suitable size for showing directly to the class. But when they are enlarged two or three times they are excellent. The simplest method, because it requires no equipment, is the *square method.* In this, you draw small squares over the picture or map to be copied and then larger squares on the paper on which you are to make your drawing. By numbering the squares, you can draw exactly in every large square what you see in every small square. With practice you can become quite expert in this.

The quickest method is the *projection method.* For this you need a slide or filmstrip picture of what you want to enlarge. Pin your paper on to the wall, adjust the distance and focus of the projector until the projected picture on your paper is exactly the size you want it, then draw it just as if you were tracing it. With this method you can simplify the detail of the original as much as you like.

If you do not have a projector, a *pantograph* may help you. This simple mechanism, which you can make for yourself from four old rulers, is described in Section B. It enables you to enlarge to two, three or four times the size of the original.

3. *Background Materials*

When making charts or wall maps for yourself, you will have to decide at an early stage what kind of background material to use, for this will determine the durability of the finished product and also how well it will take paints, inks and glue. The list below gives the main kinds you may use and their approximate price for a sheet about 24 in. by 20 in.:

Newsprint—one farthing.
Sugar paper—one penny.
Thin card—fourpence.
Strong card—sixpence.
Strawboard—one shilling.
Hardboard—two shillings.
Plywood—three shillings.
Cotton cloth—one shilling and sixpence.
Flannelette—Two shillings and sixpence.
Plastigraph—Two shillings.

4. *Painting*

Although the ability to make a harmonious choice of colours needs the genius of the artist, a few simple rules can help the amateur to produce really effective visual aids using only a small range of colours.

Rule 1. For brilliancy and emphasis, use a warm colour against a cool colour or a dark colour against a light colour from the chart shown in fig 55.

Rule 2. Use as few colours as possible. It is more effective to use only three or four colours than to paint with a dozen.

Rule 3. Harmonious effects are produced by choosing colours adjacent to each other on the colour chart.

Paint for charts can be obtained in *transparent* or *opaque* kinds. For classroom use, the latter is better but care needs to be taken

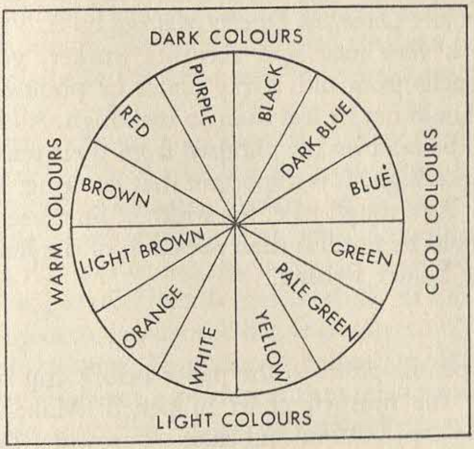


Fig 55. Colour chart

to prevent the powdery quality of some makes from smudging or rubbing off when they are dry. This can be easily prevented by the application of a thin *fixative* by means of a mouth spray. An effective and inexpensive fixative in those areas where it can be obtained is ordinary cow's milk. Where milk cannot be obtained a very dilute gum is effective.

The application of colour over large areas always presents a problem if an even intensity of colour is to be obtained. It can be done by using very large brushes like those used for house painting. But for detailed work a small brush must be used. However, a very pleasing effect can be obtained by spraying. In this process, screens of waste newspaper must be made which cover the areas where the particular colour being used is not wanted. The best colours for spraying in this way are the dyes sold in the market for dyeing cloth. Mix these as directed, then dilute with water according to the intensity of colour you require.

5. *Lettering*

Many an otherwise good chart is spoiled by bad lettering. The cure for this is always to use stencils for all lettering. Many different styles and types are available in bookshops, varying in price from a few pence to a few pounds. The simplest provide a shape which you outline in pencil and then ink in solid. The more expensive require special pens or *stippling brushes*. They are described very well in the booklet *Classroom Display Material* by A. Vincent.

If you are a very neat and accurate worker, you can make your own stencils from old X-ray plates or photographic negatives. Titles should not be less than an inch high. All lettering that you expect to be read by the children from their seats must be at least half an inch high. It is important that lettering should be well proportioned. As a rough rule, the width of lines used to make up the letters should be not less than one-sixth of the height. Thicker lines will give bolder writing.

6. *Layout*

Never put pen or paint to the paper before you have planned the layout of the finished chart in pencil. Make good use of margins at the top, bottom and sides. A crowded chart is a bad one. Good margins help to focus the eye on the information. They should never be less than one inch. If you are using pictures which you intend to stick on to the chart, try them in various positions and screen them with paper to find out what size and positions give the best effect. Mark with pencil the position of the corners for ease in mounting later. When planning the layout for the titles ensure good symmetry. See that the margin before the first letter is equal to that after the last and write out all titles roughly in pencil to check spacing.

7. *Production*

The golden rule for all maps and charts produced at home is *simplicity*. Keep all outline shapes simple, choose the pictures with the least detail, keep the text to as few words as possible and use as few colours as you can. Make the colours serve the purpose of the chart by creating emphasis where it is wanted and improving clarity. Make all your work fulfil the A B C of visual aids discussed in Chapter 7.

MAKING YOUR OWN MODELS

How you make your models depends on the materials you choose to make them with. Solid models are generally robust and able to stand up to the handling of children. Good materials for making these are clay, glue-sand, plaster of Paris, plasticine, sawdust, wood, fibreboard or papier-mâché.

Glue-sand is made by mixing dry sand with paste made from cassava flour. When wet, it moulds into shapes as easily as clay but when dry it is almost like cement. Sieved clay can be mixed with cassava flour paste in the same way to prevent cracking when it dries.

Plaster of Paris is the material used for making plaster casts when you break your leg. It can be bought from most drug suppliers. Its value is for taking castings. You can make an exact replica of almost anything by immersing the object in a tin filled with liquid plaster, When the plaster has set, it should be removed from the tin and the block should then be cut carefully in half. This allows the original object to be removed but leaves its exact impression in each half of the plaster. If these two halves are again placed together and liquid plaster is poured in through a small hole drilled for the purpose, a replica of the original object will be formed which can be removed when the plaster moulds are removed. It is always advisable to smear the surfaces of the moulds with soap or vaseline to prevent the fresh plaster from sticking.

Papier-mâché can be used in two ways. Either wastepaper can be pounded with a little water until it makes a moist pulp ready for modelling; or else paper can be torn into tiny pieces and stuck with cassava flour paste in successive layers on the object to be modelled using soap or vaseline to prevent the paper sticking to it. When the layers have been built up to a sufficient thickness and the paper has become thoroughly dry, the paper can be cut with a razor blade into two halves and removed from the centre mould. They can be joined again by pasting small strips of paper across the line of the cut.

In relief models and similar flat models, it is not necessary to make two halves; the papier-mâché mould is simply lifted off the top of the former that has been used. Such models are much lighter than solid ones though not so strong.

'Hollow' models like those produced by the second papier-mâché method of construction can also be made with strong paper and card. This is the quickest way of making houses for a model village but requires a good deal of skilful measuring, cutting and glueing to get good results.

Solid or hollow models such as here described can either be used individually or together to form model scenes built up on a sand tray. In the open like this, they may be looked at from any angle.

Alternatively they can be built in enclosed boxes with a limited viewing window. The latter method gives a greater sense of reality. Much ingenuity is possible for producing model trees, bushes, grass, roads, rivers and sea from cloth, sponges, cellophane paper and other scraps of material. In modelling of this kind, it is easy for the enthusiast to be carried away by the materials and his control over them. This is not the educational value of models as a teaching aid however, and the temptation must be avoided.

PROTECTING TEACHING AIDS

After they are made, there is almost no limit to the forces which try to destroy your teaching aids. There are dust, damp, wind, rain, termites, borers and mice, not to mention the heavy hand of use. From all these forces you need to give your teaching aids protection and this includes the electrically operated ones as well, because they are particularly susceptible to dust and damp.

Damp encourages the growth of *mildew* on paper and cloth and fungus on films and the lenses of cameras and projectors. The latter is more serious because it can completely ruin this expensive equipment. Damp can also affect the insulation of the windings in transformers and electric motors and bring about their destruction when they are used. Thus it is important to provide protection from damp for expensive pieces of equipment.

The easiest and most inexpensive way to seal things off from the air when they are not in use is to keep them in *polythene bags* or tins. A strip of 'Sellotape' round the lid of the tin or along the opening of the bag will ensure an airtight seal. In case the air is damp when the bags are sealed you can put in some *silica gel* which absorbs water from the air. When it has itself become damp, it can be put in the oven to drive off the moisture and can be used again. Uncooked rice can serve the same purpose. It will keep the equipment with which it is sealed free from dangerous damp. Like silica gel, it can be warmed in the oven and used again.

Termites, borers, and other small creatures which do damage to paper, cloth and wood can be prevented best by waging war on the creatures themselves. Chemical killers like 'Dieldrin' produced by Shell are very effective. Sprayed on to the visual aids, it will give them good protection, but care must be taken in its use as it is highly poisonous.

Mice do a good deal of damage to paper visual aids. They can be prevented by spreading *camphor balls*, in the cupboard where the pictures are stored.

Most damage comes from normal wear and tear. This is best prevented by mounting your pictures, charts, maps and so forth on strong backing material. Cloth is the most durable, but card and even brown paper are quite satisfactory. Added strength is obtained by binding the edges with strips of sticky paper or thin plastic and reinforcing the corners where the pictures are pinned when on display. Some teachers have even gone to the trouble of making special display frames into which they slip the pictures they are using for a lesson. These are simply large envelopes, open at two ends, backed with hardboard and faced with cellophane paper or transparent plastic. These frames help to overcome not only the problem of protection in the classroom but also the tendency of pictures to curl up if they have been stored in a rolled-up condition. The main items of protection are shown in fig 56.

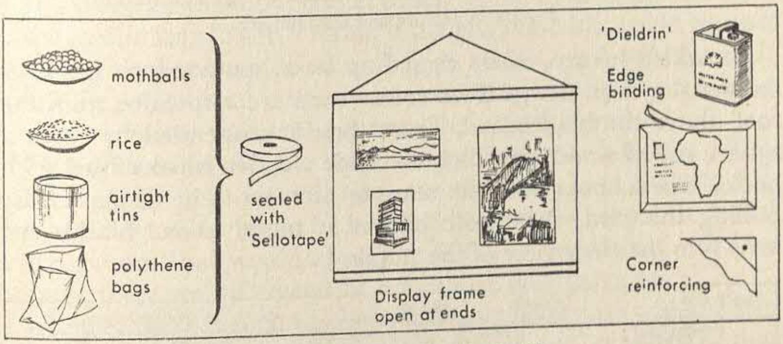


Fig 56. Protection for visual aids

DISPLAYING TEACHING AIDS

The value of a good visual aid can be completely wasted unless it is displayed well. Many classrooms are not adequately furnished with facilities for display. But is it important that they should have at least some boarding on the side walls. The soft board used for ceilings is very satisfactory because of the ease with which drawing pins can be pushed in and withdrawn. It is a mistake to put up a strip immediately above the blackboard as this inevitably leads to part of the board being obscured.

The display frame described under 'protecting teaching aids' is useful because it allows the pictures to be held by the teacher or hung up on a nail without fuss or delay. Two or three such frames, about 30×20 in. each, will be found sufficient by most teachers for their classroom needs so long as they remember the great law for displaying teaching pictures which is, 'Display for a day, then put them away!'

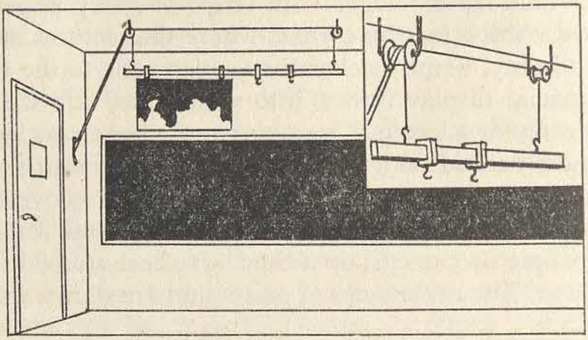


Fig 57. A picture and map hanger

An added luxury, easily rigged up by a handyman is the map hanger shown in fig 57. Two cotton reels are suspended from the roof above the blackboard. From these is suspended by cords a square rod of wood on which can slide wooden blocks fitted with hooks. These hooks hold the maps or pictures to be displayed. By pulling the cord, the whole hanger is raised above blackboard level into the clear view of the pupils.

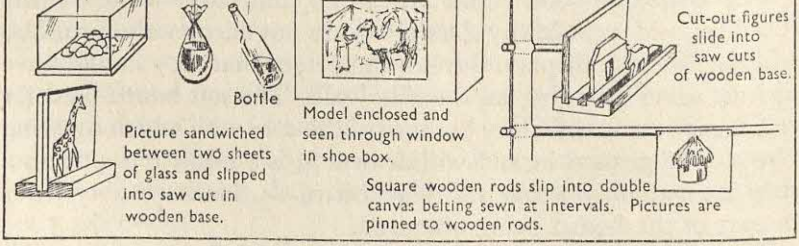

Match box
Plate
Plastic box
Scenic model
Polythene bag
Bottle
Picture sandwiched between two sheets of glass and slipped into saw cut in wooden base.
Model enclosed and seen through window in shoe box.
Peg-board
Pinned to soft board
Cut-out figures slide into saw cuts of wooden base.
Square wooden rods slip into double canvas belting sewn at intervals. Pictures are pinned to wooden rods.

Fig 58. Some methods of display

Models can be displayed on sand-trays, special tables or display cabinets. Of course, during the lesson they will be available for handling and close observation. Small models and specimens can be displayed well on peg board, using bent wire to support them. This kind of board is excellent too for setting up an exhibition. A few ideas for display are given in fig 58.

Greater emphasis can always be given to picture illustrations on a notice board by framing them with coloured paper. Links between a map and pictures of places on the map or samples of products can be indicated by lengths of brightly coloured wool joining the pictures or samples to the appropriate places on the map. It is good for the children to do this.

STORING TEACHING AIDS

Expensive equipment like radios, tape recorders and projectors must be kept in a safe room. It is therefore worth considering not only a place for them but one in which all the models, pictures and maps can be kept. Such a room, if it were available, could be part museum, part storage-room and part audio-visual aids room. It would be convenient to incorporate it with the listening-room for broadcast lessons and perhaps even the school library.

Such a room would give scope for putting up exhibitions which other classes would see and also save the delicate equipment like projectors from having to be bumped around the school. It would make a room that would always be full of interest to the children because there would always be something new going on.

Whether there is such a room or not, however, you will need an efficient method for storing your pictures and maps and that means a system for classification and also storage space.

Pictures, maps, charts, models, specimens, slides, filmstrips and all that you have for use in lessons should be classified on the same system. It is quite practicable to use the same classification system as the library and indeed this is a very useful plan since it allows cards for books and visual aids to be placed in the same catalogue cabinet, and studied in the same place. This adds weight to the argument for storing the audio-visual aids in the library.

All pictures, maps, charts and so forth will be easier to store easily and find quickly if they are mounted on paper or card of standard sizes. This is rather expensive unless you have been doing it since you began collecting. If you cannot afford it, be sure that you put the index number of each item always in the same place, e.g. the top left-hand corner. This aids quick reference. Such items are best stored in files of a size about that of the largest used, as this saves folding. A vertical filing system arranged like a wardrobe is easier to deal with then one using flat shelves or drawers.

Specimens and models can be stored and found most easily if they are kept in some uniform kind of container. Some teachers have used plastic boxes, polythene bags and the like; others have used matchboxes, tin lids, plates and even food bowls. There is no rule. You must choose what you can get cheaply and easily in your area. But classify them in the same way as the pictures and, as far as possible, in the same place. For actual storage they can be placed either on tables or in shallow shelves.

Section B

MAKING YOUR OWN TEACHING AIDS

1. The main items of equipment needed are illustrated in fig 59. If there are any you have not used before, you should practise working with them before using them to make an important teaching aid. A few points are given about some of them which you may find useful:

Knife

This is needed for scoring card before it is folded. The score should be made with the knife, using a ruler as a straight-edge on the open side of the fold.

Fret-saw

This type of saw is invaluable for sawing intricate shapes in plywood or hardboard. It can be used for making jig-saw maps, stencils and many types of small teaching aids made of wood.

Felt-tipped Pen

Pens of this kind can be bought. They use a quick-drying spirit ink available in a variety of colours. Their value lies in their ability to give a broad, solid line at once and thus enable quick lettering for posters and charts. They can be made at home by cutting a square ended piece of felt from an old felt hat or from the felt pad of a spirit duplicator. Pressed through the top of an ink bottle cap or the rubber top of a gum bottle, they can be used with ordinary inks or dyes.

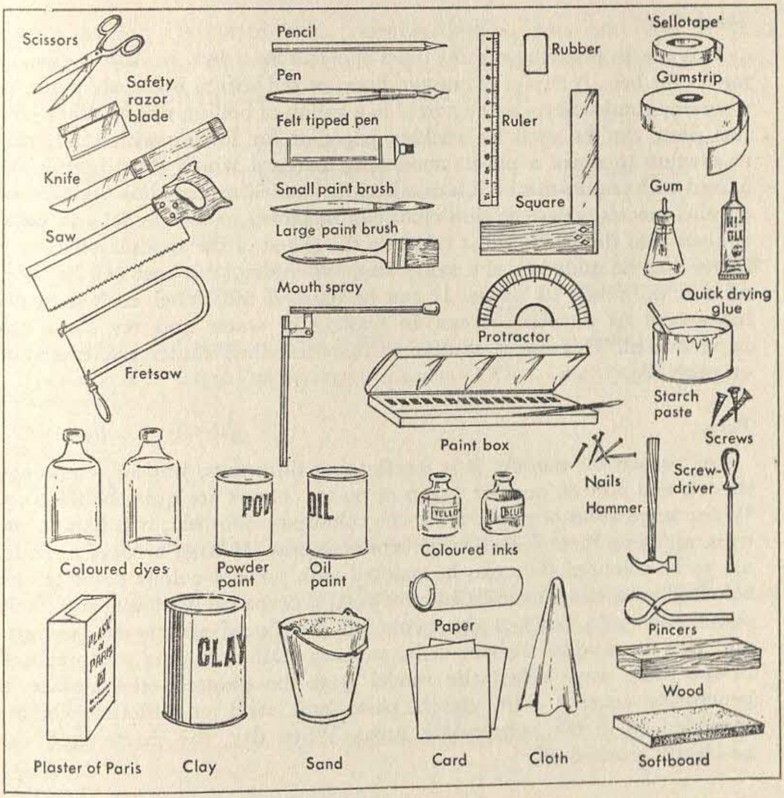


Fig 59. Equipment for making visual aids

Mouth Spray

The spray consists of two metal tubes fixed at right angles in such a way that air blown through one passes across the top of the other. This blast of air has a suction effect on the other which draws up the liquid in which the vertical tube is placed. The blast of air sprays the liquid as a fine mist giving a stippled effect wherever it lands. Such sprays can be bought for a few pence or can be made using two lengths of hollow grass (each about 6 ins. long) and fixing them together with wire. Dyes and inks work best with the spray.

Quick-drying Glue

Several brands of this are sold commercially, most under the name 'balsa wood cement'. They are useful for making quick repairs for joining materials you cannot hold or cramp for the length of time taken by other types of glue-set. Because it is relatively expensive you are wise to use it sparingly. For joining rubber, 'Bostik' is excellent.

Starch Paste

This can be made from most types of cereal flour but, in Africa, cassava makes the best. A cupful of cassava flour, mixed with a little cold water to a creamy consistency, can be added to a gallon of boiling water. When cool this paste can be used for sticking paper or for mixing with sand, clay or sawdust to make a plastic modelling material which dries very hard. Mixed with papier-mâché it is excellent for modelling too. For taking casts of relief models, gauze or thin cloth can be laid over the model and paste rubbed into the gauze till it takes up the shape of the model. Additional layers may be added in the same way. When dry, this cast can be lifted off and will retain its shape. It can be painted too. When such a model has served its purpose, it can be washed in water and the cloth can be recovered. This use is similar to that described under papier-mâché on page 189.

Paints

For permanent models, it is worth using oil paints, but for temporary models and posters, powder paints or poster colours are quite satisfactory. Where large areas of paper are to be coloured uniformly, it is best to use dyes, applying them with a large brush or spray. If large areas of a model are to be coloured they can be painted with powder-colour paint or else coloured sand can be used. Coloured sand is prepared by immersing finely sieved sand in a bowl of dye. Pour off the liquid after a few minutes and dry the sand in the sun or in an oven. Other colours are prepared in the same way. When the model is to be painted, the surface is generously covered with starch paste and sand of different colours sprinkled on to the appropriate areas. When dry, the excess sand can be lightly brushed off.

Plaster of Paris

The material must be kept dry, otherwise it becomes useless. The instructions for using it are printed on the packet.

Clay

It is useful to collect your supplies periodically rather than go for it just when you want to use it with the children. When it is collected, dry it thoroughly, then pound it. Put it through a fine sieve to remove all other materials. The clay can be kept in powder form, though it requires at least twenty-four hours to soak before it can be used for modelling. If kept moist, ready for use, it should be kept in a drum with a little water at the bottom so that the mass is kept damp.

2. Study fig 60. It gives the best ways of making overlapping joints and hinged joints with different materials. The secret for sticking paper and card is to use as little adhesive as possible and thus keep the paper dry. This avoids the buckling that takes place

when paper becomes wet. Alternatively, you can use rubber solution. If you do, you must spread it with a knife or plastic spreader. You will ruin a brush if you use it.

MATERIAL	OVERLAPPING JOINT	HINGED JOINT
Paper	Starch paste put on thinly or staples	Sellotape Gumstrip
Card	Starch paste, staples or rubber solution	Sellotape or gumstrip or other plastic strip with contact adhesive
Cardboard	Carpenter's glue or Balsa cement	Sellotape or cloth hinges
Plywood and Hardboard	Panel Pins or carpenter's glue	Cloth hinges or metal hinges
Cloth and Flannelette	Sewing	—
Plastigraph	Pressure	—

Fig 60. Methods of joining and hinging materials for visual aids

When joining two pieces of paper together, always work from the centre outwards so as to drive out the air bubbles.

COLOURS IN BOX	YELLOW	RED	BLUE	BLACK	WHITE
Grey				x	x
Orange	x	x			
Purple		x	x		
Green	x		x		
Brown	x	x	x		

Fig 61. How to make more colours from your paint box

3. In fig 61, you can see the variety of colours that can be made from a paint box with only five colours. All of the colours and the combined colours can be made lighter in hue by adding white. They can be made darker by adding grey. Variations in the proportions of colours mixed will give an almost infinite range of colours. For example, four parts of green plus one part of purple make olive and four parts of orange plus one part of olive make the colour called russet. Experiment by yourself with colour mixing, noting what colours you use and what proportions you need to obtain the colours you like.

4. Make a map of Africa of a size suitable for putting in children's

exercise books by glueing rubber-covered electric wire or thin elastic bands to a piece of good-quality linoleum or a piece of smooth rubber obtained from a motor tyre. When finished, wrap the stamp round a suitable tin and bind it firmly. Roll the tin firmly on a pad of cloth saturated with ink and then roll the tin on a piece of clean paper and there is your map! Remember that the map you make must be a mirror image of Africa because in printing it is reversed.

5. Make some stencils of useful shapes from celluloid, tin plate or thin plywood. The celluloid can be cut with a knife or razor blade. It can also be drawn on with a red-hot nail. If this can be kept hot electrically, as in an electric soldering iron, you will save much time. The tin plate can be cut with scissors. For the plywood you will need a fret-saw.

6. Make a pantograph as follows:

> Take four old rulers and prepare each of them in the way shown in fig 62 by drawing lines across the rulers at the distances shown. Drill holes just large enough to take a small nail about one inch long at the mid points of each of the lines. These must be exactly opposite the inch marks of the rulers. Mark these holes A, B, C, and 2, 3, 4, 6 as shown.
>
> The hole D should be bigger and should be large enough to hold a pencil firmly when pushed into it. Because the centre of this hole must be exactly at the 12-in. mark, it may be necessary to glue an extra piece of wood on to the end of the ruler before drilling. This can be conveniently done using some of the spare wood from the ruler which had to be cut in half.
>
> Push a nail through points B and B and another through C and C. Push another nail through points 2 and 2 if you wish to enlarge 2 times; or 6 and 6 if you wish to enlarge 6 times. These nails can be kept from slipping out by putting a piece of cycle valve tubing on the nail in the way shown in the sketch.
>
> A pair of geometry compasses, dividers or similar sharp instrument pushed through hole A and pressed into the table or drawing board will anchor the pantograph. Then if the picture to be enlarged is traced with nail CC, the pencil at D will enlarge it 2, 3, 4 or 6 times according to the setting.

When you have completed the pantograph, enlarge a simple picture or map by the three methods described on pages 185–186. Which do you find the quickest, which the easiest and which the most accurate?

7. Practise using a spray and both small and large brushes for spreading paint or dye. The spray will give you plenty of opportunity for experiment using screens of different shapes.

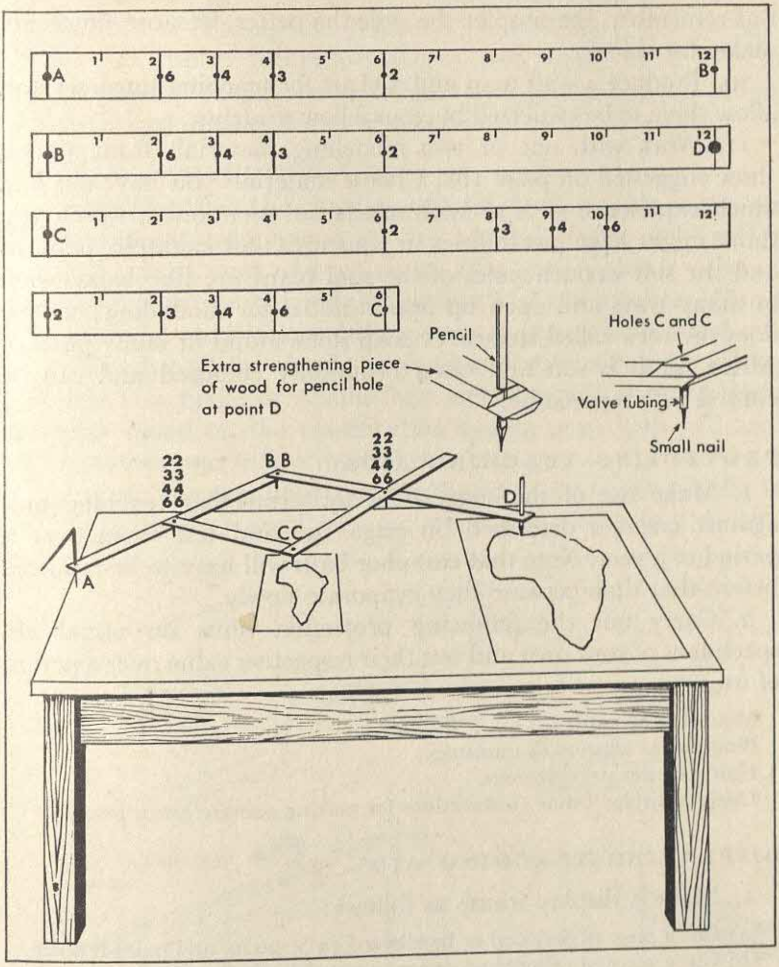


Fig 62. How to make a homemade pantograph

8. In a notebook, write a number of sample titles with stencils or special lettering pens. Pay particular attention to margins, the ratio of width of line to letter height, the spacing between letters and words and also in getting all your letters vertical. Lettering is usually best done with black Indian ink.

9. After you have had practice in lettering, you are in a position to think about making your own letter stencils with celluloid. You can make an alphabet of the type of letters you like best.

But remember, the simpler the style the better, because simplicity makes for clarity.

10. Produce a wall map and a chart for teaching purposes and allow them to be criticized by your fellow students.

11. Work with one or two modelling materials from among those suggested on page 188. Choose materials you have not had much experience with or with others not mentioned, which you think might have possibilities in your area: for example, papyrus and the soft wooden poles of the sisal plant are like balsa wood in many ways and open up opportunities for modelling; so also does the rock called steatite or soap stone found in many parts of Africa for it is soft and often beautifully coloured and can be carved with a penknife.

PROTECTING TEACHING AIDS

1. Make use of the suggestions for protecting teaching aids against enemies described on page 190 and test them over a period of a year. Note that camphor balls will have to be replaced before that time because they evaporate slowly.

2. Carry out the following protection hints on visual aid specimens of your own and test their respective value over a period of use:

Mounting on card.
Binding the edges with gumstrip.
Fixing corner strengtheners.
Using a display frame (instructions for making one are given below).

DISPLAYING TEACHING AIDS

1. Make a display frame as follows:

(a) Cut a piece of plywood or hardboard 30 × 20 in. and paint it black.
(b) Cut a piece of cellophane paper or transparent plastic 30 × 24 ins.
(c) Place the cellophane on the backing board and fold over the extra 2 ins. at the top and bottom and fix the overlaps to the back of the board with Sellotape. See that the cellophane is stretched tight. If you are using hardboard, keep the rough side at the front because its roughness will help to keep the pictures from slipping.
(d) Pictures can be put in and taken out easily by bending the backing board forwards slightly when you require.

2. Make a map hanger like that described on page 192.

3. With a group of your fellow students put on an exhibition illustrating some theme such as 'The Timber Industry', 'Mining

in Africa', or 'Facing the Problems of our Time'. Use as big a variety of display techniques as you can. Invite other students to it and study the interest it arouses. Let your colleagues criticize the technical details of your presentation.

STORING TEACHING AIDS

1. Look back in the chapter on basic teaching aids at the suggested classification system for the library. Under what subject sections would most of your visual aids come? Almost certainly you will need to subdivide the sections and use numbers. Discuss the practical application of the system to your school visual aids.

2. Number all the visual aids you have previously collected and all that you make or obtain from now onwards with an index number based on the classification system you think will serve your present and future needs best.

3. Study the two filing systems shown in fig 63 and fig 64 for storing large and small pictures, maps and charts and make a

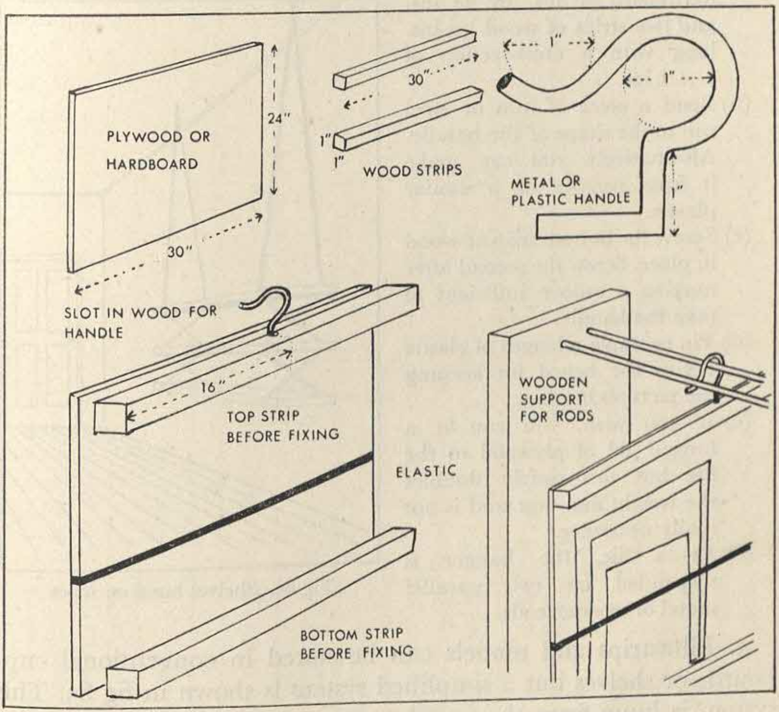


Fig 63. A file for carrying or storing maps and pictures

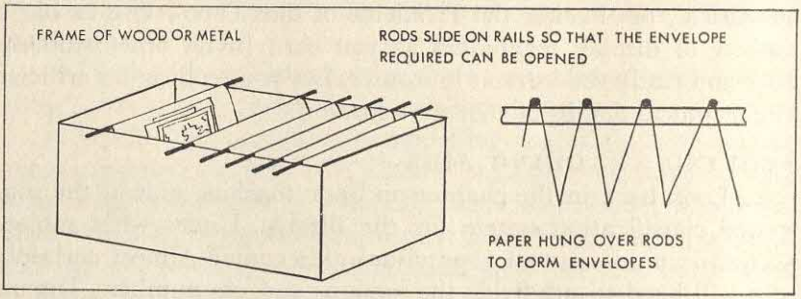

FRAME OF WOOD OR METAL
RODS SLIDE ON RAILS SO THAT THE ENVELOPE REQUIRED CAN BE OPENED
PAPER HUNG OVER RODS TO FORM ENVELOPES

Fig 64. A file for smaller pictures

sample of each. The larger will be useful for carrying pictures and maps to school and will give you a pattern for making a full set of files when you are a permanent teacher.

Instructions for making a picture file:

(a) Cut a piece of plywood or hardboard 30 ins. by 24 ins. and two strips of wood 30 ins. long with a cross-section of 1 × 1 ins.

(b) Bend a piece of iron or steel rod to the shape of the handle. Alternatively you can make it from perspex or a similar plastic.

(c) Screw the bottom strip of wood in place. Screw the second after making a groove sufficient to take the handle.

(d) Pin or staple a length of elastic across the board for keeping the pictures in place.

(e) If you wish, you can fit a hinged lid of plywood to the file but this nearly doubles the weight and cost and is not really necessary.

(f) As a file, the hanger is suspended on two parallel metal or wooden rods.

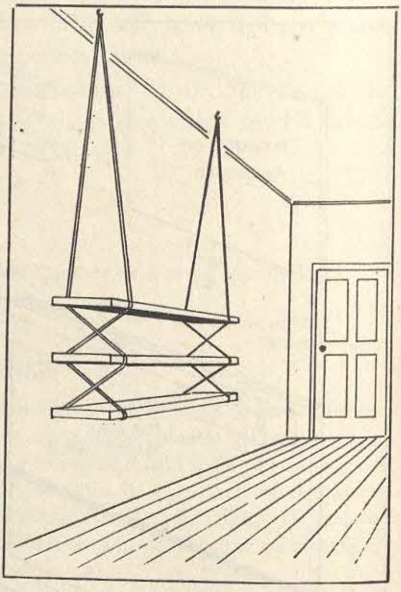


Fig 65. Shelves hung on ropes

4. Filmstrips and models can be stored in conventional cupboards or shelves but a simplified system is shown in fig 65. This system is hung from the roof by ropes and avoids the danger of

termites by not being in contact with the floor at all. You must be sure to use good rope and make your knots secure. Do not overburden the shelving.

For Further Reading

General Books

See Chapter 7.

Special Books

A. VINCENT.	*Classroom Display Material.*	National Committee for Visual Aids in Education.
	Information on Materials for Making and Protecting Wall Charts and Handouts.	O.V.A.C. Publication No. 3.
F. J. MITCHELL.	*Practical Lettering and Layout.*	Black.
K. M. TROWELL.	*Materials.*	Longmans.

Part 4

THE TEACHER

10. QUALIFICATIONS FOR TEACHING

Section A

ACADEMIC STANDARDS

ALL over Africa, and in every other continent too, governments are faced with growing numbers of pupils without comparable increases in the numbers of trained teachers.

A teacher cannot enlighten his pupils if he himself is ignorant. He can lift them no higher than himself. It is important therefore that a good deal of emphasis should be given during training to making the student a well-informed teacher. After college, and throughout his career he should always be learning and improving himself. He must have an active mind and he must keep it sharp by constant activity. This is done through private study, discussion with others on topics that exercise the intellect and by developing habits of mental activity. If a teacher ceases to learn, his mind will become stagnant and this is the worst enemy of education.

It is a great temptation for teachers to teach the same lessons in the same way year after year. But to do so is fatal. Once a teacher is in a rut he has virtually closed his mind to other truths and other ways. Like the Pharisees he has forfeited his right to be a teacher and has become a blind leader of the blind.

It can hardly be expected that every teacher will be a graduate. Unfortunately, many teachers seem to think that by making their teaching as difficult as possible, they are teaching like graduates. Instead of using straightforward language they use the longest words they can and wallow in their self-glory. The mark of the brilliant teacher, however, is not that he makes his teaching brilliant but that he makes it seem to the pupil wonderfully simple. A lesson is not taught until it has been learned and it cannot be learned until it is understood. Therefore it is the responsibility of the teacher to feed his pupils with mental food which they can digest. To do this requires a deep knowledge of what he teaches.

On the other hand, teachers are sometimes drawn to the other extreme. They continue to feed their children on milk long after they should be weaned. Pupils benefit from having their minds stretched, by being faced with problems which puzzle them and tax their intellect. A great educator of the past put the point well when he said, 'A pupil from whom nothing is demanded which he cannot do, never does all he can.' And so the teacher must constantly make the children feel that what they are doing is worthwhile and deserving of effort.

HUMAN QUALITIES

As you think of your own schooling, it is almost certain that what remains in your memory most strongly is not the lessons you learned but the teachers who taught you. Teachers are the only audio-visual aids that appear in every lesson and they are memorable because they are frequently associated with some emotional experience. What will children remember about us as teachers when they have forgotten what the area of a circle is or how many square yards there are in an acre? Will they not remember whether we were kind, honest, fair, strict, proud, and things like that?

As a teacher you need to develop those human qualities of personality and character that will make you a better teacher because you can reach and make real contact with your pupils. To a few these qualities come naturally and almost without effort; for most people, they must be laboured for and obtained by constant conscious effort. They do not come to the person who is in the teaching profession only until he can get on to the next rung of the ladder or who can find nothing better to do. They come to the person who takes up teaching because he likes it, likes peoples, likes watching children grow up, but most of all, sees teaching as a means of helping children to meet the challenge of life.

The following are some of the main qualities which make a successful teacher:

1. *Physical Energy*

The teacher who burns himself up in his own affairs will have no fire left for his teaching. He will teach badly, go home frustrated and go from bad to worse. Healthy living is the secret of physical energy; it allows all your good intentions to be carried out, thus sparing you the shame of the charge 'The spirit is willing but the flesh is weak'.

2. *Perseverance*

Teachers often have to face opposition from other teachers, headmasters, parents and others. Perseverance takes them along the course towards their goal despite opposition. Discouragements may come but should not turn the resolute teacher from his purpose. Perseverance is not the same as stubbornness. It is intelligent resolve to follow what is the right course despite every obstacle. If a thing is worth doing, it is worth doing well.

3. *Responsibility*

Much responsibility is placed on a teacher, for he is put in charge of growing children for nearly half of their waking days. A sense of responsibility requires that he should be aware of what has been entrusted to him and that he should always work in the best interest of the children.

4. *Initiative*

When a teacher gets into a routine which never changes, then he has lost his initiative. The teacher with initiative will never be a dull teacher. On the contrary, his lessons will be unusual and interesting because he is always thinking of fresh approaches. Progress in society comes through the action of men of initiative. The best teachers possess great initiative.

5. *Self-control*

If a teacher is unable to control himself, he is not likely to be a suitable person to control others. Many situations in your career as a teacher will irritate and anger you, but unless you can control your anger you will do more harm than good in the school. An outburst of temper may be fascinating to watch for those not intimately concerned (and lively children often take a delight in playing on the quick temper of a teacher), but the effects of bad temper are fundamentally bad.

Some teachers allow themselves to develop a kind of habitual irritability and a tongue that speaks only harshly and sharply. Such teachers quickly lose real contact with their children; when this is lost, all is lost.

6. *Decisiveness*

Much bad discipline in schools is due to indecisiveness on the teacher's part. The root of indecisiveness is lack of trust in yourself and your own judgement. It shows itself in a fear of making your own decisions and in appeals for reassurance from others.

Children respect the teacher who is businesslike, knows what he wants and means what he says. They understand the teacher who makes clear his intentions. These are essential elements of leadership. It is important however, in one's attempts to be decisive, to avoid making hasty decisions which may be regretted later.

7. *Sincerity*

Not many people set out to be deceitful, but some become so when they find it easier than being sincere. For you as a teacher, sincerity may mean disagreeing with a senior when you believe you are right, instead of agreeing with him simply because he is your senior. It means doing a thorough job in the classroom, not just to impress others, but to achieve sound results. Some teacher's work is all 'shop window'; it is all done for show. This is deceitful. Insincerity is a cover for something you are ashamed of.

8. *Humour*

Making fun of children is not humour; it is rudeness and bullying. Humour is not the opposite of being serious but is the force which restrains you from being too serious. It is a precious asset, and if you want to cultivate it you should first try to cultivate a sincere and ready smile.

Humour shows itself in pleasantness, cheerfulness, friendliness, a sympathetic understanding manner with children and a balanced attitude towards events both good and bad. The person who possesses these characteristics readily gets the reputation for being a 'good man'. This is not a sign of weakness in a teacher but a definite asset because it makes him approachable.

The relationship of approachableness between pupil and teacher is what every teacher should strive for because it is an ideal relationship for both teaching and learning. In essence, humour reflects your philosophy and faith.

9. *Loyalty*

Loyalty to a person or organization means doing the best you can for them. The trouble is that loyalties often conflict. In your teaching career they may conflict, for example, when you must choose between visiting the parents of difficult children or spending time with friends. You must, in each case of conflict, decide which loyalty has prior claim to your services. Loyalty requires a high sense of duty often involving self-sacrifice.

10. *Leadership*

The teacher by the nature of his job is a leader. Whether you lead well or badly depends on yourself. Leadership requires that you have aims which you believe to be worthy of your children's effort and ideals and standards of behaviour which you make the basis of your relations with them. Your followers must see you as an image worthy of their respect. This has been the secret of all the world's great leaders. In many ways leadership demands all the human qualities we have been talking about. It does not come from reading about them or even knowing what is required; it comes from practising these qualities in your life as a citizen and your work as a teacher.

DIGNITY AND AUTHORITY

When a teacher loses the respect of his children he loses his most valuable qualification for teaching, his dignity. Dignity is not the same as old-fashioned stuffiness. It is that maturity of character that draws respect. It is unfortunate that some teachers, in their zeal to have good teacher-pupil relations, have become as one of the pupils, permitting a degree of familiarity which breeds only contempt among the pupils. This state of affairs is made worse by the increasing tendency in the modern world for parents to ignore their duty to train their children to respect elders and those in authority. Dignity and authority are easier to sustain in a society whose stratification is based on age and wisdom rather than on wealth or other forms of status.

Respect and obedience can be demanded by a teacher from his pupils, but it is much better if these are voluntarily given. It is generally true that a teacher gets what he deserves. The pompous fellow will give delight to his children whenever he slips from the pedestal upon which he has set himself. The bully will rouse hopes for revenge in the hearts of his pupils. The one who seeks popularity will find his kingdom crumble the moment his weak rule clashes with the pupil-government he has put in power. The teacher who is content to muddle along will always be in a muddle. Only the teacher who earns real respect will get it.

One of the best ways to gain respect is to show it to others. Courtesy and good manners are the means by which we show respect to others. They are what make society pleasant and companionship enjoyable. It is important therefore that, as a teacher, you should support the training in good manners given in the home and be an example of courtesy yourself. Good manners command respect and should be habitual in your relations with fellow teachers, parents and children. Rudeness and bad manners are the mark of the man who cares nothing for the finer things of life.

Authority is power. The teacher starts with the scales heavily weighted in his favour, first because he is grown up and the pupils are immature children and secondly because his knowledge and experience far surpass theirs. But power may be used well or badly. It is important to be clear on what kind of authority you want to exercise. The analogy of the herdsman and the bullfighter gives some useful insight into good and bad applications of authority. In the one case the herdsman uses his authority to lead his animals to the best pasture, to improve the herd and make it fruitful; he exercises his authority in love. The bullfighter uses his authority to demonstrate his superiority over the animal and, to do so, he engages in a fight to the death. As in all combat, he calls upon reserves of hate. The exercise of this kind of authority by a teacher is harmful and destructive. True authority is a form of combined effort between teacher and pupils towards a common and worthy goal.

Thus no good teacher takes advantage of the authority he possesses to throw his weight about or do harm to his pupils. He wields his power for the benefit of his pupils. Even when his authority permits him to punish children for wrong doing, he does so for their good and not out of any spirit of revenge. The teacher who has a godly faith, sees the authority he holds as given to him by God. He sees it as a power for which he is answerable to God and for which some day he must give account.

TEACHING BY EXAMPLE

What a teacher is and what he does speak much louder than what he says. What use is there in condemning untidy work by the children if your own is untidy? Or is it justice to punish children for lateness when you are careless about punctuality yourself? To teach things that we do not believe or do not practise makes us hypocrites. It is essential for us to be *consistent.*

Since the teacher has such an influence on the children, it is surprising that although parents are free to choose the school they send their children to, they have no choice in the matter of who will teach their children. It might be salutary to teachers if they were paid in accordance with the degree of confidence shown in them by parents. This is the case with those commerical firms which make special baby foods. They depend for their livelihood on having a good reputation with parents. Without it their business would die.

Teachers who are conscious of the importance of their work rather than their own importance, are *modest.* They accept from others any criticism which helps to make their work more effective. They are *self-critical* too, aware of their own strong and weak points. Only self-modesty gives us the right to criticize the work of our pupils and it must always be given for the purpose of improving their work, not just in blunt condemnation.

One of the weak points of many teachers is their example in *orderliness.* A visit to many staff-rooms would suggest that most teachers are in varying states of disorder. Naturally it is difficult to appear tidy if you are dealing each day with large quantities of teaching apparatus, exercise books which need marking, registers, chalks, notes from parents and so forth, but the problem must be tackled.

Orderliness is really a habit of the mind and one which every teacher should cultivate, because an orderly mind should be one of the products of education. To begin with, it helps if you cut down your material burdens to as few as possible, having with you only those in actual use. Keep the others neatly stored in cupboards until they are needed, then put them back again after they have been used. Make a note daily of the things that need to be done and see that you do them. Jobs left undone are a constant source of irritation both to yourself and others.

While considering Human Qualities, Dignity and Authority, we have so far referred only to the *manner* and *bearing* of the teacher, but these are not the only things in which his example is noticed, for his *appearance*, *dress* and *speech* also have a strong influence upon the children.

The teacher who fails to practise the rules of personal hygiene which he demands of his pupils—for example, if he comes to school with hair uncared for, and long, dirty fingernails—he is unlikely to convince his children that such things are important or worth bothering about, no matter how often he inspects the children.

Some people are over-meticulous about their clothes. A teacher should not fall into this snare, nor the opposite one of being too careless about dress. The clothing worn by the teacher should be suitable for his job and should not hinder his efficiency in any way. The importance of this is most obvious in physical education lessons where the teacher must be able to move freely and let his movements be seen by the children. Dress for this subject should be as limited as is consistent with modesty.

The teacher's example in speech is far-reaching. Slovenly speech is inexcusable. Clear speech comes through practice in using the tip of the tongue, the teeth and the lips and is greatly helped by speech training. If you do not speak clearly when teaching, you have to speak louder than you need. In doing so you exhaust yourself, the children in your class and probably the neighbouring classes as well. Learn to conserve your voice by always speaking clearly.

Pronunciation and grammar should always be correct; otherwise your pupils will copy your mistakes and accept them as the correct form. You can get help towards accurate speech by listening to radio broadcasts or by listening to yourself on a tape recorder.

There is no excuse for bad language or careless slang. These are improper forms of speech and will only be discouraged among the pupils if they are avoided by the teacher.

Section B

ACADEMIC STANDARDS

1. After you have qualified as a teacher, keep yourself alert by following some of the following suggestions:

(a) Read one general kind of book per month—more if you can.
(b) Subscribe to a popular magazine like the *Reader's Digest*.
(c) Take up a correspondence course which will help you towards a higher qualification.
(d) Join a club or society in your country whose objects are educational, e.g. Geographical Association, Natural History or Field Society, Historical Association, etc.
(e) Attend teachers' refresher courses from time to time.
(f) Develop a hobby that will help you in your teaching, e.g. photography, puppetry, painting, etc.
(g) Listen to some of the cultural and critical radio programmes produced by your broadcasting corporation.

2. Consider some of the lessons taught by great teachers of the past, such as Jesus, and analyse their technique of putting fundamental principles across in simple language and concepts. Listen to some modern radio or television lessons and note the ways the teachers use to make their points simply and vividly.

3. Discuss what characteristics of the modern school system tend to leave some children intellectually untaxed. Go on to discuss how you as a teacher would ensure that this does not happen to your pupils.

4. Discuss possible immediate and future solutions to the problem of teacher shortage which might be used in your country, next year, five years hence and twenty years hence.

HUMAN QUALITIES

1. Put the ten qualities enumerated on pages 208–11 in what you think is their relative order of importance for a teacher.

2. Score yourself on the following test for human qualities required for the teacher: If you agree with the third answer in a section, you have the quality poorly developed; score 1. If you agree with the first answer you have it to a high degree; score 3. If you agree with the second you are about average; score 2. A score of 20 is average; less than 20 is below average, and a score of more than 20 is above average. Be honest!

(a) *Physical Energy.*
  i. You overflow with energy, which shows itself in the exceptional amount of work or play you do in a day.
  ii. You are a vigorous worker but still have energy left in the evening for other activities.
  iii. You show sufficient energy to carry out only the routine activities which have to be done each day.

(b) *Perserverance.*
  i. You have courage to persist in the face of physical disability, failures or hostile criticism which would discourage most people. You do so without being foolishly stubborn.
  ii. Your self-respect keeps you working even when interest has waned. You keep on trying.
  iii. Usually you finish what you undertake to do unless very much discouraged.

(c) *Responsibility.*
  i. You are very conscientious about doing well all that you are asked to do. Always reliable.
  ii. You can be depended on to do what you say you will except in abnormal circumstances.
  iii. Usually you are dependable but you are rather easily turned from your purpose.

(d) *Initiative.*
  i. You have imagination which you use to tackle new problems with vigour and, when necessary, with courage.
  ii. You are fairly adaptable and not too dismayed by changes.
  iii. Only rarely do you take action or suggest plans beyond your routine work.

(e) *Self-Control.*
  i. You are exceptionally able to control both your speech and action even under stress. You are able to approach problems you feel strongly about in a remarkably objective manner.
  ii. Usually you are able to hold judgement or reaction until you have 'thought it over'.
  iii. You try to keep things under control but some things just make you boil over.

(f) *Decisiveness.*
  i. Once you have made up your mind on the course of action to be taken in an emergency, you carry out your plan resolutely.
  ii. Usually you know what to do in an emergency but sometimes you have doubts as to whether you are doing the right thing.
  iii. You find it difficult to make up your mind on important matters and tend to 'go to pieces' in an emergency.

(g) *Sincerity.*
  i. You are always careful to be straightforward in your speech and actions, having the courage to give your real opinions even though they may be unpopular with your friends or superiors.
  ii. You work honestly without supervision and are not a 'yes man'.

   iii. Much of what you do is done to impress others. You are sincere with your friends but 'play safe' with superiors.
- (h) *Humour.*
   i. You enjoy life and like being friendly and kind to people. You do not let things get you down but can always raise a smile.
   ii. You are willing to help people when you can, but do not go about looking for people in need. You have your ups and downs.
   iii. You get on fairly well with people you know but do not enjoy unusual experiences. Often you get depressed about things.
- (i) *Loyalty.*
   i. You have a high sense of duty and are prepared to carry out your duty even at considerable sacrifice to your own interests.
   ii. You are willing to defend even a minority cause.
   iii. You give support to other members of staff in difficulty so long as it does not inconvenience you.
- (j) *Leadership.*
   i. You have exceptional vitality and courage and can lead not only those who like you but those who do not like you.
   ii. You can get the class to do pretty well what you want them to do.
   iii. You find that people do not listen to your suggestions and children give you trouble.

3. Here are ten points for improving your human qualities for teaching. They are taken from those given to students at Character Training and Leadership courses held in Nigeria by the Outward Bound Movement. But remember that it is not reading about them which will help you, but practising them:

(a) Know yourself—your own virtues and shortcomings.
(b) Know how to keep your fears to yourself and share your courage with others.
(c) Realize that you can only fulfil yourself in service to others.
(d) Know the need for social service and the opportunities that exist for such service.
(e) Learn humility and learn that the performance of menial tasks is not degrading.
(f) Know that wealth must be earned, and when earned, must be spent wisely.
(g) Know what leadership means, how to recognize leaders and those who are not.
(h) Have high principles and live them out in civic discipline, tolerance and in observing a high moral standard of life.
(i) Have aims for your life and activities.
(j) Learn the value of time.

4. Discuss the importance to the teacher of the qualities mentioned in 2 and 3 above.

DIGNITY AND AUTHORITY

1. Try to analyse the factors which contributed to the authority or lack of it in the teachers who taught you in primary school.

2. Discuss ways in which the teacher can get near his pupils and enjoy good relations with them without losing their respect or obedience.

3. Why are respect and obedience to seniors vital lessons for children to learn? Discuss these lessons in relation to the family, school and society, and illustrate the discussion with examples from your experience.

4. Discuss or debate the following assertions:

(a) 'Teachers usually get what they deserve.'
(b) 'Popularity bought at the price of respect is a worthless bargain.'
(c) 'Manners maketh man.'
(d) 'Be polite to your seniors, but push the others aside!'
(e) 'No man has a moral right to rule over others.'
(f) 'Punishment should hurt the teacher more than it hurts the pupil.'

TEACHING BY EXAMPLE

1. Make a list of things (for private use only) which you preach and teach but do not practise.

2. Describe the kind of person who you would like to teach your son or daughter.

3. Analyse the elements of good constructive criticism in relation to when it is appropriate, how critical and how constructive it should be and the way in which it should be given.

4. Make suggestions for ways of keeping the following places tidy:

(a) The staff room.
(b) The teacher's table in the classroom.
(c) The teacher's cupboard.
(d) Pupils' desks.

5. Trace the figure of a teacher from fig 66 very lightly, in pencil, then draw clothes on the figure suitable for the occasions listed below.

(a) For physical education lessons.
(b) For normal teaching.
(c) For speech days and special occasions.

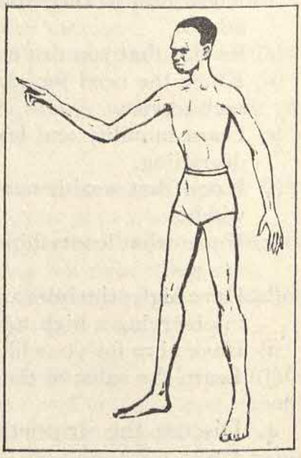


Fig 66. Outline for dressing

You should dress the figure as a man if you are male or as a woman if you are a female. Compare the dress you have drawn with that supplied by others of your fellow students and conclude with a discussion on the subject of dress for teachers.

6. Record your voice in a teaching situation and assess it as regards, clarity of enunciation, accuracy of pronunciation, accent, fluency and loudness.

For Further Reading

V. L. GRIFFITHS.	*Character Aims.*	Longmans.
	The Year Book of Education 1963. The Education and Training of Teachers.	Evans Brothers.

11. PREPARING TO TEACH

Section A

SYLLABUSES

IF every school was left to teach what it liked there would be a very wide variation in what was taught and in the standards reached. Consequently, in nearly every country, externally set *syllabuses* are drawn up which are the basis of the teaching in the schools. In this and following chapters, topics on teaching and school organization are dealt with on which local rules are made by national or regional Ministries of Education. In no two countries are these rules the same. This book deals with these matters in a general way but, of course, the rules of your area should be followed.

In Africa, primary syllabuses are sponsored by the governments. But for more advanced work the syllabuses are usually set by the examining body for whom the school or college prepares its students. The main purpose of syllabuses is therefore to unify the studies in schools and to limit the scope of examinations.

Before a syllabus is published, a great deal of work is done. Specialist teachers in each subject draw up a tentative syllabus and this is submitted to other teachers for criticism. When everyone, or nearly everyone, has had their say, the syllabus is put into its final draft and submitted to the examining body for approval. When they have accepted it, then it is published and becomes the syllabus for all schools who are preparing candidates for this examining body.

The form in which syllabuses are printed is usually fairly general. They consist simply of a series of statements of what is to be learned, such as simple interest, latitude and longitude, seed dispersal, etc. The interpretation of the syllabus is left to the schools and is called a *scheme of work.*

SCHEMES OF WORK

The syllabus must first be put into the order in which its contents will be taught. In subjects like geography and history it is possible to arrange the material in various sequences for teaching and each might be equally satisfactory. But in subjects like arithmetic and English there is much less freedom because each new step depends on the thorough understanding of what has gone before. For example, it is not possible to teach simple interest until the children have learned how to do percentages. Therefore the first requirement of a scheme of work is that it should put the syllabus into a fuller form and into logical sequence.

Secondly, a scheme of work must give a suggested allocation of time for the teaching of each section of the syllabus and perhaps give recommended textbooks. This is a great help to the inexperienced teacher who needs all the guidance he can get. Many School Authorities provide schemes of work for their schools. Some of these allocate the work on a monthly basis, while others do so on a weekly basis. Indeed, some go so far as to indicate the ground to be covered in each lesson.

Although such strict control of the teaching programme is good in that it prevents the untrained or inexperienced teacher from going astray, it is otherwise bad because it leaves no room for the teacher's initiative and does not allow for individual differences between one class and another. Also it largely prevents the teacher from grouping his class according to the rate of progress of the individuals. By keeping to the letter of the law, it has been known for a teacher to omit completely an important lesson because it fell due on a public holiday. Such strict control over the teacher's lessons inhibits his individuality and tends to produce teaching that is unimaginative and never rises above a dull mediocrity.

The best answer lies in Authorities providing their schools with schemes of work which are arranged on a monthly or termly basis. Then, duplicated series of lessons can be made available to headmasters for junior members of staff and untrained teachers which will amplify fully the main scheme of work. Other teachers will be left free to prepare their own series of lessons and accommodate their teaching to the needs and speeds of their own classes.

SERIES OF LESSONS

When you have to draw up your own series of lessons, you must first consider the ground to be covered and consider it in relation to its place in the syllabus as a whole. There is no point, for example, in teaching the practical preparations necessary for travel abroad every time you make an imaginary visit to a foreign country. On the other hand, there is no point in proceeding with a new step in arithmetic until the foundation on which it will be built has been fully understood by the children.

Secondly, you will have to decide how many periods you can afford to devote to the series. The rate of progress of your class will determine this, though you cannot afford to come to the end of the year with some important topics of the syllabus completely untouched.

The sequence in which you will teach the lesson material can be decided at this planning stage. But it must be emphasized again that, whereas in some subjects this sequence can be varied, in arithmetic and English the sequence must be progressive with one topic preparing the ground for the next.

It is a bad policy to prepare a series of lessons in great detail and then, when the time comes to proceed with them exactly as planned whatever happens; but it is good to plan them in fair detail.

Planning a series of lessons includes deciding not only on the topic of the lessons but also their main content. You will also be giving thought to methods of teaching and the activities you will give to the pupils so that if apparatus is required, you will have sufficient time to make it or obtain it before the lesson is taught. Such forethought and planning ahead gives you time to make arrangements when you want to visit a place of interest or invite a special visitor to come to the school.

The value of planning a series of lessons rather than living from day to day is that it helps you to see the material as a whole rather than as dismembered parts and helps you to present it in an interesting way that is understandable to the children. But never allow your plan to become your master. Always apply it intelligently to the circumstances as they are and use it to serve the needs of the individuals in your class.

THE MEANING OF LESSON PREPARATION

Occasionally, perhaps because another member of staff is absent, a teacher may be called upon to teach a lesson for which he is unprepared. But normally a teacher should never fail to prepare his lesson. In the hands of an experienced teacher who has been over the ground many times before, the unprepared lesson may be reasonably successful, but in the hands of the novice the result is bound to be a failure.

The unprepared lesson is always recognizable by some or all of the following features:

(a) *Incomplete Subject Matter*
This happens because it is very difficult, unless you have a subject at your finger-tips, to be able to recall all the important points.

(b) *Incorrect Facts*
In every lesson, some facts have to be taught. In information lessons the number is larger than in other types. The teacher frequently finds himself in the position of having to give judgement on whether one fact or another is true. Unless he has prepared, or is very familiar with the subject, he is likely to make some incorrect decisions with consequent loss of face when the children learn the truth.

(c) *Lack of Detail and Illustrative Material*
One can usually say a little about almost any subject, but the less one knows, the sooner one dries up. Consequently the unprepared teacher gives lessons which lack the detail and illustrations which make them really interesting and almost certainly teaches without teaching aids.

(d) *Disorderly Presentation of Information*
It is almost impossible to arrange unfamiliar lesson material in a logical or interesting sequence. Consequently the lesson tends to pour out as a jumble of unrelated facts.

It cannot be said too often that lesson preparation does not mean only writing lesson notes. The notes are the last stage of the process. A well-prepared lesson can be taught without any notes but a good lesson cannot be taught without preparation.

When you set out to prepare a lesson, you must first ask yourself '*Who* is to be taught?' It is obvious that a lesson prepared for children of twelve would not be suitable for children of six, the content and approach would be different in each case. Moreover in a class where you have children well advanced and others lagging far behind, you are not going to teach very well if you prepare a lesson which is for all of them together. A well-prepared lesson for a class containing children at different stages or with widely varying ability must take into consideration these varied elements; they should be taken in groups or as individuals when appropriate.

The second question is '*What* is to be taught?' This requires that the lesson has an aim, and that material for the lesson will be selected in order to achieve that aim. The material for the lesson will largely be obtained from textbooks, but the good teacher will constantly be gathering his information from all manner of sources such as observation, private reading, the radio, films, newspapers and experience in general. Careful preparation will result in much more material than can be used in the lesson. Consequently much selection will be necessary. This should be done with the aim of the lesson clearly kept in view and also the capacity of the children.

Lastly, you will have to ask yourself '*How* is it to be taught?' This will determine your method. Teachers have developed multitudes of methods based on a knowledge of child development and the psychology of learning. You must choose the method you think will serve your purpose best. But you should bear in mind that it is possible to have too much of a good thing and that one method, which may be delightful and stimulating if used from time to time, can become wearisome if used all the time. The secret is to vary your methods. Variety is the spice of life and it leads to interesting and lively teaching.

LESSON NOTES

Much controversy has centred on the subject of lesson notes. There are those who feel a lesson is not properly prepared until a full account of it has been set down on paper. Others think that the drudgery of note writing in such detail detracts from time which could be spent on better preparation and more imaginative teaching. If you remember that lesson notes are merely the conclusion to lesson preparation you will have the right idea; it is the preparation which is the important thing. There is a useful analogy in the receipt given by a shopkeeper for a sale. Some write out laboriously all the items sold, their respective prices, the total and the epigrammatic statement, 'Received with thanks.' Others write merely an acknowledgement of the sum received.

Others do not bother with receipts at all. But in every case, goods have been obtained by them, put on display, selected by a purchaser and given to him in exchange for cash. The shopkeeper's main work is in the activities of trading. His success is measured by the quality of his business, not by the receipts he writes out.

Lesson notes do serve a purpose, however, in aiding the memory of the busy teacher. They provide him with a programme of the lesson, so that he can be reminded of each step. If the notes are to do this, they must be short and each section should be able to be read at a glance. There should never be a time when he needs to bury his head in his notes. A quick glance should be enough to remind him of the next step.

From this you will see that your notes should be short enough to be read quickly and arranged in a way that makes finding each step easy. Good writing and good spacing achieve this. At the same time the notes should indicate clearly the content and method of the lesson.

The following pattern is one which you can use if you need to write out full lesson notes and it explains what you must have in mind even if you write no lessons notes at all.

1. *General Information*

The date, time of day and length of lesson determine in varying degrees your preparation. Likewise, the age of the children, their standard, how many there are in the class and whether they are all boys, girls, or mixed will affect your methods for teaching the lesson.

2. *Aim*

Your aim must be *specific* and able to be achieved in the lesson. Your teaching of a subject may have *general* aims, but for a lesson, it is the *specific* aim which is vital. Your aim should be expressed as simply and as clearly as possible for it is the most important part of your lesson. It provides the limits of your lesson and keeps you from wandering. It determines what material you select and the emphasis you give the various points in your lesson. For example, in a lesson on Mary Slessor, you might aim at presenting her as a woman of courage, or you might choose to concentrate on her missionary activities or perhaps present her as a politician. Each aim would necessitate the selection of different material.

When writing out your aim, avoid expressions of vague intentions such as 'To talk about . . .' As a student you are being trained *to teach*, later you will be examined by an inspector to assess your ability *to teach* and in due time you will be paid *to teach*. Therefore it is good to begin your written aim with the words '*To teach* . . .'

3. *Previous Knowledge*

In almost every lesson you will rely on knowledge the children have previously acquired. You need to think what this previous knowledge is if you are to build successfully on it. Some students mistakenly think that previous knowledge is what the children last learned about. This is not so. Previous knowledge, as it affects lesson preparation, is only that knowledge which is relevant to the new knowledge to be taught and which will help the children to learn more successfully if they are reminded of it.

4. *Introduction*

Every lesson will have an introduction just as every essay does. It should be stimulating, arousing the curiosity and interest of the children and making them responsive and alert. There is almost no limit to the kinds of introductions that you can give. You must decide for yourself in accordance with the age and interests of your pupils.

5. *Presentation*

The presentation should be a clear statement of what is to be taught in the lesson and how it is to be taught. Vague suggestions like 'discuss' should be avoided unless the purpose of the discussion or expected conclusions are noted in the lesson notes. Discussion as a teaching technique is not idle talk; it should be a teacher-directed purposeful oral exercise. Your ingenuity and skill as a teacher should be evident from your presentation.

6. *Conclusion*

This is the part of the lesson where the aim is finally realized. Sometimes it will be brief; sometimes, in the form of an activity for the children, it will form the main part of the lesson. This is further explained in the section on lesson patterns. At all events, the lesson should come to an end in a decent and orderly manner because it is completed—not, as so often happens, because the period bell has gone.

7. *Children's Activities*

The purpose of including this as a separate item is so that you can see at a glance the activities you propose to carry out and also ensure that the lesson does not become a lecture.

8. *Apparatus*

You should note here the items of apparatus that you need to take with you to the classroom. This provides a last minute check for you before leaving home in the morning, or before leaving the staffroom to teach the lesson. It should include things like coloured chalk if this is not normally available in the classrooms, any textbooks or notebooks that you need to bring to the classroom as well as teaching aids like pictures, maps, models, projectors and materials required for handwork.

9. *Blackboard Summary*

The blackboard should be drawn to scale in the lesson notes for all information-type lessons and what you propose to write on the the blackboard should be shown. It is better that you do the thinking at the preparation stage than that you approach the board during the lesson unsure of what you are going to write or where on the board you are going to write it.

Section B

SYLLABUSES

1. Study the syllabuses used in your country for each subject that you will have to teach when you become a teacher. Discuss their content and purpose.

2. Discuss the implications of the assertion 'A Syllabus is what you make of it'.

3. Discuss the problem of 'covering the syllabus' with particular reference to teaching classes with a wide range of intelligence.

SCHEMES OF WORK

1. Select a subject which you like teaching and prepare a scheme of work for one year based on the official syllabus for that

subject. Prepare your scheme of work on a monthly basis and make clear in it how you interpret the syllabus. It should show how you subdivide each topic in the syllabus and what emphasis you give it by the length of teaching time you allocate to it. Fig 67 shows an example of this with the further breaking down of the syllabus into series of lessons.

SYLLABUS	SCHEME OF WORK	SERIES OF LESSONS	
		CONTENT	METHOD
The Mali Empire	The visit of Ibn Battuta to Mali (3 lessons)	1 Travel in imagination with Ibn Battuta across the desert	Description. Build up blackboard map. Picture of camel caravan if not known to class. Children to describe imagined experiences.
	Describe his journey and his account of life in Mali	2 Mali as described by Ibn Battuta, life and qualities of the people	Description. Comparison of Mali customs with our own.
	Compare with trans-Sahara travel today	3 Old and new trans-Sahara transport: camel lorry plane	Descriptions, pictures, maps (comparison with map in lesson 1). Airway timetables, etc.

Fig 67. Breaking the Syllabus up for Teaching

2. Obtain, if you can, different schemes of work based on a single subject syllabus used in your country and compare the different approach, interpretation and emphasis used in each.

3. Answer the question 'To what extent should the syllabus be a master or a servant to the teacher?'

4. Discuss the importance of deciding on the textbooks you will use before planning a scheme of work.

SERIES OF LESSONS

1. Prepare the outline for a series of lessons, based on a topic from a scheme of work for each of the following types of class: Fig 67 above shows the method of tackling the problem.
   (a) An average class.
   (b) A bright class.
   (c) A slow class.

2. Compare outlines for series of lessons prepared by different

teachers in the same subjects and note the degree of individuality each shows.

LESSON PREPARATION

1. Let each of your fellow students write the topic for a lesson on a slip of paper and put in into a hat. Draw lots for two or three students to be blindfolded and choose one slip each. Each student should then, without any preparation, teach in brief the lesson which he has selected from the hat. Your fellow students should discuss the following points after the lessons are taught in order to see the need for lesson preparation:

(a) Content of the lesson.
(b) Accuracy of the facts presented.
(c) Extent to which illustrations, verbal and visual, were used.
(d) Orderly presentation of the lesson.

2. Prepare the outline for a lesson on 'The Motor Car' for each of the following occasions:

(a) As a general knowledge lesson for six-year-old children.
(b) As a geography lesson in a series on 'Modern Industry' for twelve-year-old children.
(c) As a history lesson in a series on 'The Development of Transport' for ten-year-old children.

3. Prepare in outline similar lessons in other subjects and for different age groups in the manner shown in 2 above.

4. Prepare an information lesson in detail. In addition to noting the points suggested under Lesson Notes, write down the sources from which you obtain your lesson material such as the names of textbooks referred to, newspapers, radio, etc., and also what teaching aids you will use and how you got them.

5. Write out the notes for an information lesson in two or three different ways, e.g. Write the presentation in the form of an abbreviated essay; or under headings or steps; or divide your page into two columns showing in one the matter you intend to teach and in the other the methods you propose to use at each stage. Which method of setting out your notes do you find best for taking in at a glance? What points would you make about the amount you should write in order to have clear lesson notes?

6. Compare the effectiveness of full lesson notes as opposed to brief or outline notes.

LESSON NOTES

1. Express different aims for each of the following lessons:

The Jihad.
Communism.
Soil Erosion.
Fresh Air.
Food.
A Reading Lesson.
Postal Rates.
The National Anthem.
The Good Samaritan.

2. What previous knowledge can you assume from a child when he first comes to school in relation to

Language work.
Number work.
Understanding picture illustrations.
Modelling and drawing.
Music and singing.
Religious teaching?

3. Discuss the importance of giving thought to children's previous knowledge as a means to teaching more efficiently.

4. Suggest ways of making lesson introductions fulfil the following functions:

To arrest the attention of the pupils.
To stimulate their imagination.
To arouse their interest.
To excite their enthusiasm.
To bring to their minds the previous knowledge your lesson depends on.
To quicken their mental activity.

5. Choose a lesson like 'The finding of Livingstone by Stanley' and suggest how it could be taught in each of the following ways:

Story-telling.
Questioning.
Dramatization.
Pictures and Maps.
Reading and private research.

6. Discuss different methods of concluding lessons well.

7. Make as complete a list as you can of the various kinds of children's activities which are suitable for school use. Which of them aid learning?

8. The following suggestion has proved useful in keeping a lesson notebook: Buy a loose-leaf notebook and divide it into sections for each subject you teach. Make an additional section marked 'Today's Notes'. When you prepare lesson notes, put all those you will teach on the same day in the section 'Today's

Notes' for quick reference as you teach. After you have taught a lesson, put the notes for it in its subject section. You therefore have all the notes for each subject in sequence and can see easily what you have covered.

For Further Reading

G. H. GREEN.	*Planning the Lesson.*	University of London Press.
M. R. STONE.	*Lessons and Lesson Notes.*	University of London Press.

12. LESSON PATTERNS

Section A

ABOUT LESSON PATTERNS

A SERVICE of worship is very different from an entertainment show and a staff meeting is very different from a party. So it is with lessons. The patterns of lessons vary according to what they are trying to do. But you should not think of them as absolutely different and separated by hard and fast divisions, for services sometimes have entertainment qualities and staff meetings too have their fun. We place a lesson into a category according to its *main purpose* and the way *most* of the time is spent.

The following are five main types of lesson pattern used in teaching. You should note how the *introduction*, *presentation* and *conclusion* receive different emphasis in each case and serve different purposes. An understanding of the differences between the various kinds of lesson will help you greatly to approach practical teaching in the right way.

I. INFORMATION LESSONS

The information lesson is the commonest type of lesson. It is essentially a lesson in which new *knowledge* is gained. The important thing for the teacher is therefore to have a clear idea of *what* is to be learned by the children and an equally clear idea of *how* it is going to be learned.

The common danger with information lessons is lest they become lectures. Lecturing is a method of teaching quite unsuitable for the primary school. You must constantly be on guard against talking too much.

Here are some suggestions as to ways in which an information lesson can be developed:

(a) Introduction

One or more of the following methods may be used:

(i) *Questioning.* This may be to stimulate interest or to marshal facts from previous knowledge which are relevant to the lesson. Such questions are important and should be carefully thought out beforehand and written out in the lesson notes.

(ii) *Visual Aids.* A lesson begun by showing something of interest gets off to a good start because it focuses the attention of the pupils and stimulates their interest.

(iii) *Demonstration.* This has the same value as visual aids in concentrating the attention of the children but has the added value of giving them a clear idea of what is wanted. This applies to arithmetic lessons where a new process is to be taught and in other lessons in which the children are required to repeat the same kind of thing as the teacher has demonstrated.

(iv) *Activity.* After a quiet lesson it is often desirable to provide some vigorous physical activity to introduce the next lesson such as a race round the playground. Mental activity like a few quick mental arithmetic questions is a good way of sharpening concentration.

(v) *Mystery.* If an object to be used in the lesson is brought into the class concealed perhaps in the teacher's pocket but so obviously that the bulge it makes is noticeable, the curiosity of the children will be immediately aroused. Such an introduction whets the children's appetite for learning and is a useful introduction if used occasionally.

Another introduction of this kind is when the teacher announces that during the lesson he is going to make one deliberate mistake. This helps to keep the children attentive from start to finish. But the danger of it is that an inexperienced teacher may make mistakes inadvertently which the children recognize but he does not. This embarrassment and the possibility of challenges from the pupils at inappropriate times makes this form of introduction one to be used only with great care.

(b) **Presentation**

The presentation should be a record of the *facts* to be taught and the *methods* to be used. In order that this relationship can be made clear in the lesson notes, the content should be divided up under headings or steps with good spacing between each so that the eye can see at a glance what the next step is. Some teachers like to divide the page into two vertical colums named '*matter*' and '*method*' respectively; the terms are self-explanatory.

There are no limits to the methods by which the matter of an information lesson may be taught. Every teaching aid is at your disposal for this kind of lesson as well as all the teaching skills like questioning, story telling, discussion, etc. Practical activities for pupils like reading, individual study, written work, drawing, modelling and dramatization can also be used.

(c) **Conclusion**

Some teachers regard the main pupils' activity as the conclusion of an information lesson. Others like to have the last moments to draw the threads of the lesson together, recapitulating the main points or giving pointers as to what will follow in the next lesson on the subject. It does not really matter so long as the aim of the lesson is achieved and it ends in an orderly business-like way.

2. PRACTICE LESSONS

'Practice makes perfect' and if you are to get good results from your children, a proportion of your teaching will have to be devoted to lessons in which the children practise the skills they are learning. This is particularly true of key subjects in the primary school such as reading, writing and number, but practice has a place in every subject.

Not always will a whole period be devoted to practice alone, but, in those in which the main proportion of the lesson is used for practice, the pattern might be as follows:

(a) **Introduction**

One or more of the following types may be used:

(i) *Return of Children's work.* The return of the children's work after it has been taken in for marking is an opportunity for teaching. You should not miss the opportunity to make comments of general importance at this point. Comment on the work of individuals is best kept private unless it is complimentary.

(ii) *Writing out Corrections.* It is good that children do this before beginning fresh practice. Such an introduction should not be made to look like a punishment but treated as pure routine.

(iii) *Mental Exercises.* It is good to begin sometimes by giving a few easy mental questions to sharpen up the pupils' minds for the practice they are about to undertake.

(iv) *Practical Preparation.* For some lessons the introduction need only be the practical necessities of marshalling the children into the groups they are to be in for the lesson, or getting them to sharpen their pencils and get ready, or giving them a preliminary briefing of what is to be done in the lesson, or pointing out the difficulties they must beware of in their practice work.

(b) **Presentation**

It is not necessary, when an exercise from a textbook is chosen for practice, to write in the lesson notes any more than the page and exercise number. If it is practice in arithmetic you would mention the examples you want the children to do; in reading it would be the paragraphs or pages.

It is important to make provision for and note separately the practice material for those children who are good, average or weak. While the children are at work, the teacher should not be idle but should be busy going round marking and commenting on the children's work. This will help him to get a good idea of how the children are benefiting from the practice and correct any who are getting things wrong so that they do not pick up bad habits through uncorrected practice.

(c) **Conclusion**

On the basis of your review of the children's work during the lesson you will be able to decide whether you can end the lesson simply by telling the children to stop work or whether there is need to draw attention to certain mistakes that are commonly being made and show them the corrections.

3. PRACTICAL LESSONS

This type of lesson differs from the practice type of lesson in that its purpose is to provide *activity* from which new knowledge will be learned or experience gained, whereas the purpose of the practice lesson is to improve skill in something already learned or partially grasped.

For example, when you introduce the teaching of liquid volume, you do so by means of a practical lesson. Your purpose is to interest and inform the children about the topic. It is a kind of information lesson but is classed as a practical lesson because the practical aspects dominate.

A practical lesson requires careful preparation beforehand and good organization throughout. Before a visit, arrangements must be made; before a gardening lesson, the tools must be checked to see if they are sufficient. Where tools or equipment are inadequate for every child, you will have to group the children and let each group do different things. Grouping is a good practice for practical lessons even when there is adequate equipment.

The following points give some idea of the different emphasis given to introductions, presentations and conclusions in this kind of lesson.

(a) **Introduction**

The purpose of the introduction in a practical lesson is to arouse interest in what is to be done and to prepare the children for doing the work in an orderly and efficient way. It will usually be longer than introductions to other kinds of lesson. One or more of the following introductions may be used:

(i) *Explanation.* A clear step by step explanation or demonstration sets the stage well.
(ii) *Questioning.* The children may be roused to consider ways and means of tackling a practical task by judicious questioning from the teacher.
(iii) *Display.* The display of a finished sample of handwork or other specimen gives the children an opportunity of seeing in concrete terms what they have to do and also of having a goal set before them which will set them high standards.
(iv) *Practical Preparations.* The dividing of the class into groups or the issue of equipment may sometimes be the only introduction necessary.

(b) **Presentation**

The presentation should be free for the children to get on with their work while you go round the class supervising, criticizing, praising, encouraging or helping as required. In certain circumstances you may have to stop the children in order to demonstrate a new or difficult stage in the work or correct a common fault. In the lesson notes, this part of the lesson can be written very briefly.

(c) **Conclusion**

In any practical lesson there is always tidying up to be done. The conclusion might therefore be one or more of the following:

(i) *Tidying up.* Leave the classroom as clean and tidy at the end as at the beginning.
(ii) *Collecting Tools and Equipment.* Clean them if necessary and put them away into the store ready for immediate use by the next class which needs them.
(iii) *Return to Class.* If the lesson has been conducted some distance from the classroom, you will need to leave time for the return journey.
(iv) *Display.* A display of finished work by the children with comments by the teacher is valuable. Commend what is good and show where there is room for improvement for future occasions.

4. APPRECIATION LESSONS

The most common context for appreciation is in art, music and literature—particularly poetry. This is not to say that these subjects as they are taught in school must always be appreciation lessons. Appreciation is intelligent enjoyment and the purpose of appreciation lessons is to provide the understanding which will help the children to enjoy what they see and hear.

It must be remembered that appreciation cannot be taught. It is wrong for a teacher to try to impose his views upon the pupils. His task is to present art, music or literature in such a way that the children are compelled to think about it and form an opinion about it.

The pattern of appreciation lessons is usually something of this kind:

(a) Introduction

This may be merely the suggestion to look or listen carefully. Or you might rouse the interest and imagination of the children with a well-told story. At all costs, in an appreciation lesson, you must have the full attention of the children.

(b) First Presentation

In this you present the poem, music or pictures for study without comment but follow the presentation with questioning and discussion aimed at getting from the children expressions of thoughts or emotions roused by the presentation.

(c) Second Presentation

The second presentation might again be given by you, or if it were a poem, the children might read it for themselves. The purpose is to allow closer study following upon the insight that has been gained from the first presentation.

The second presentation should be followed by further questioning and discussion aimed at centring the children's attention on the stated aim of the lesson. In a poetry lesson this might be the rhyme, rhythm or meaning; in a music lesson it might be the rhythm, harmony or mood: while in an appreciation lesson on some work of art you may want to concentrate the children's attention on the colours, balance, painting techniques and so forth.

(d) Conclusion

Appreciation lessons should always be concluded with an activity designed to pursue the aim of the lesson. The following are examples:

(i) *Miming.* Movements appropriate to the mood or rhythm of a poem or song help to drive its spirit home.

(ii) *Drawing or Modelling.* Self-expression of this kind by the child calls for a clear concept of what he is trying to do. The need to draw or model helps to clarify the children's thoughts and ideas on the subject.

(iii) *Practical Performance.* Activities like verse-speaking, singing or accompaniment by percussion instruments are of value.

(iv) *Making Anthologies.* Children like to collect in a notebook of their own, new songs or poems they have learned. The writing up of these makes a suitable conclusion sometimes.

(v) *Private Research.* With a suitable library, children can look up more information for themselves about composers, authors or artists whose works they have enjoyed.

5. REVISION LESSONS

The purpose of this type of lesson is to ensure that what has been taught has been learned and will be remembered. When revision lessons reveal that there are gaps in the children's knowledge because they have forgotten what they were taught, the solution is not to teach them again but to use a new approach. Simply to teach the lesson again in the same way as before is wasteful in time and may be ineffective. If the children did not remember it from the first teaching, the same approach again may end in the same result. But if a new approach is made, the children are likely to have the lesson brought back to mind and also see it in a new light with deeper understanding.

Of course, repetition will play a part in revision lessons but the repetition should be done by the children rather than the teacher. Also the teacher will find that by making the children act in some way, he compels their minds to draw on what they know. This is what happens when you are asked to draw a horse for example. You try to recall what it looks like. The necessity for drawing it makes the task very urgent and you may well find that the act of trying to draw it has shown up a good deal of ignorance.

The following approaches to the revision lesson are useful:

(a) **Introduction**

This will usually be brief, perhaps just a statement by the teacher of what he proposes to revise or a few questions to make the children realize their need to revise.

(b) **Presentation**

As soon as possible the children should be put on to some activity which will help them to remember what they have been taught previously. The following are suggestions of suitable activities:

(i) *Expression Work.* If the children are asked to write about or draw or model what they have learned, weaknesses in their knowledge will be immediately evident.
(ii) *Creative Work.* This is a step beyond simple expression work. In getting children to write plays or make workbooks based on something they have learned, you will quickly see the extent and depth of their knowledge. Such creative work demands a good understanding of the subject and also provides the children with an interesting form of revision.
(iii) *Group Work.* This helps revision by making it social and enjoyable. Preparing exhibitions or displays makes enjoyable demands.
(iv) *Games.* The quiz and other competitive team games like spelling bees, arithmetic races and reading competitions have all been used successfully.
(v) *Practice.* Pure repetition such as in working more arithmetic examples or repeating verbally things learned has some value. But older children tire of it more quickly than younger ones.
(vi) *Generalization.* If you can relate what you have taught with wider fields of interest you will help the children to remember better. From the particular to the general and from the concrete to the abstract are principles that apply to the revision lesson.

(c) **Conclusion**

The type of conclusion will depend on the form of the presentation. It should not be long. Its purpose is to show you clearly how effective the revision has been.

Section B

INFORMATION LESSONS

1. Let students in your class prepare introductions to a topic along the lines suggested on pages 232 and 233 and then present their introductions for criticism and appreciation by the rest of the class.

2. What relationship to the process of learning does the introduction to an information lesson have? Check back to Chapters 5 and 6 if you have forgotten the steps in the process of learning.

3. Explain why activities should form an important part in information lessons.

4. Prepare an information lesson using the knowledge and experience you have gained from this chapter to plan the content

of the lesson, the methods you will use to introduce it, how you will present your main material so that it is remembered by the children and also how you will conclude the lesson.

5. Make a note of the following common weaknesses in teaching information lessons and make a conscious effort to avoid them in your own teaching. Discuss practical measures you can take to prevent these errors:

(a) Lecturing (too much talking by the teacher).
(b) Trying to teach too much information.
(c) Using no activity for the children.

6. Which subjects tend to have a greater proportion of their lessons in the form of information lessons and thus might be called information subjects?

PRACTICE LESSONS

1. Discuss the value of the various types of introduction suggested on page 234.

2. Why do practice lessons particularly need separate consideration for the able and less able pupils?

3. What subjects tend to have a high proportion of practice lessons and might be called skill subjects?

4. Make a note of the following common weaknesses in teaching practice lessons and make a conscious effort to avoid them in your own teaching. Discuss practical measures you can take to avoid making these mistakes:

(a) Letting the children spend too little time in practice work.
(b) Giving too little work for the bright children and too much or too difficult work for the less bright.
(c) Not taking note of individual weaknesses when marking.
(d) Not noticing common mistakes which indicate a lack of understanding.
(e) Not emphasizing the need for improvement and high standards by the children so that they improve through their practice.

5. Prepare a practice type of lesson and allow it to be watched and criticized by the rest of your class when you teach it.

PRACTICAL LESSONS

1. Explain why the introduction to a practical lesson is so important and give examples of lessons for which the introductions suggested on page 236 would be good.

2. What practical preparations would be necessary before teaching the following kinds of lesson?

(a) A visit to a factory, hospital, or other private place of interest.
(b) A lesson requiring tools or equipment.
(c) A lesson to be held in another room or place in the school.
(d) A lesson which must be held at a different time from the usual.

3. Make a note of the following weaknesses in teaching practical lessons and make a conscious effort to avoid them in your own teaching. Discuss practical measures for overcoming them:

(a) Not making sure that all the children know exactly what they are to do.
(b) Allowing the children to go ahead with the lesson despite insufficient tools or equipment with the result that some are idle and get up to mischief.
(c) Wasting time while giving out tools or materials.
(d) Leaving the classroom or place of work untidy at the end of the lesson.
(e) Losing equipment issued to the pupils because it gets mislaid, broken or misappropriated by them.
(f) Spending too much time explaining, demonstrating, etc., and leaving too little time for the children's practical work.
(g) Bad control and organization of the children while they are away from their desks or the classroom.
(h) Failure to commend good work and to criticize constructively work that falls short of what you expect.

4. What subjects are essentially practical subjects? Give examples of practical lessons for each subject in the school curriculum.

5. Prepare a practical lesson and teach it with your fellow students as observers and critics. They should pay particular attention to the points mentioned in 2 and 3 above.

APPRECIATION LESSONS

1. Suggest suitable introductions for the following lessons:

A poem about birds of prey.
A song involving simple harmonies.
A story about workers of magic.
Learning about patterns in art.

2. Discuss the extent to which familiarity and prejudice determine our likes and dislikes in relation to art, music and literature.

3. The following are common weaknesses found in the teaching of appreciation lessons. Take conscious note so that you will

avoid making these mistakes and discuss ways in which they can be prevented:

(a) Teacher tries to make the pupils conform to his views.
(b) Children never have their enthusiasm aroused.
(c) Presentation of songs or the reading of poems, etc., done very badly with the result that children do not get a real opportunity for appreciation.
(d) The children do not actively participate in the lesson but are allowed to be passive observers or listeners.
(e) Interruptions from within the class or from outside disturb the concentration required for satisfactory appreciation.

4. Prepare an appreciation lesson and teach it with your fellow students as observers and critics. They should assess the extent to which you have been able to rouse the enthusiasm of the pupils and help them to form opinions about the subject of the lesson.

5. Discuss the value of the library and teaching aids such as the filmstrip, tape recorder and gramophone for teaching appreciation lessons.

6. Discuss whether it is right that non-specialist teachers should teach appreciation in fields in which they are largely ignorant; that is, should a teacher without art training be asked to help children formulate their views on art and so on?

7. Explain the importance of the conclusion to an appreciation lesson and discuss the value and practical application of the various types of conclusion suggested on pages 237 and 238.

REVISION LESSONS

1. What function does revision serve in the process of learning? Check up in Chapter 5 if you have forgotten.

2. Discuss the value of the various types of activity suggested on page 239 for revision and give examples of how you would apply these methods to specific revision lessons.

3. Explain why revision should follow fairly soon after the teaching of a series of lessons and then be repeated at less and less frequent intervals, if the lesson material is to be well remembered and available for answering examination questions.

4. Plan with a fellow student a series of five lessons in arithmetic to be taught during teaching practice. The series should cover a single topic of the syllabus. One of you should teach the series using all five periods, giving no time for revision, and the

other should teach for four periods and revise for one. After finishing the series, give an identical test to both classes and see if there is any significant difference in their results that can be attributed to the revision lesson.

5. The following are common mistakes made by teachers with regard to revision. Discuss ways in which these mistakes can be prevented:

   (a) Holding too many revision lessons. More than one lesson in ten is usually too many. A few minutes of revision more frequently is more efficient than less frequent whole periods given over to revision.
   (b) Teaching the subject again rather than first searching for the gaps or weaknesses in the children's knowledge.
   (c) Making the lesson boring and repetitive.

GENERAL

1. When you are given your programme for teaching practice, and working out your scheme of work and series of lessons, you should plan how you will deal with each lesson allocated to you, whether it will be essentially information, practice, practical, appreciation or revision. In this way you will be able to work out sound lesson plans for each.

2. Which of the five types of lesson do you think require the fullest lesson notes and which can get along satisfactorily with the briefest?

3. Discuss the merits of our system of education which divides knowledge and skill into lessons that have to be fitted into class periods of a set length of time.

For Further Reading

M. R. STONE. *Lessons and Lesson Notes.* University of London Press.

Part 5

THE CLASSROOM

13. CLASS MANAGEMENT

Section A

ABOUT DISCIPLINE, ORDER AND CLASS MANAGEMENT

THESE terms are often confused and therefore used wrongly. An analogy may help to make their meaning and relationship clear. In the army, all training is given with the purpose of making soldiers obedient to their officers and efficient at carrying out tasks given to them under varying circumstances. The degree of willingness to obey orders is a measure of the discipline of a company of soldiers. Similarly, the efficiency with which they carry out a task is an indication of their orderliness.

On the barrack square or on the occasion of big parades, the soldiers are proud of how well they can drill and they like to put up a good display. But none would dream of marching into battle in this way. It would be suicide. For action, they use more appropriate methods which may not appear orderly like the ranks and columns of a march past but are in fact as orderly because every man is moving to a plan and purpose. This orderly efficiency would be impossible without the soldiers learning habits of obedience and discipline or self-control. It would be impossible if the officers were in doubt as to the objects of their attack or doubted the reliability of their troops.

So in the classroom, discipline may be measured by the extent to which the children are self-controlled and willingly apply themselves to the tasks appointed by their teacher. Neat rows of children sitting up straight with arms folded suggest the orderliness of the parade ground. The real test is whether they go into action keeping to the plan, and can reach the targets given to them. Real orderliness may require the children to work in groups and talk together; it may produce noise, but the proof of whether it is good or not will be found in the results. Likewise the test of the teacher's success in class management will be seen in his good relations with his pupils and in the fact that the activities in the classroom follow a plan that is both purposeful and efficient.

DISORDERS IN THE CLASSROOM

One of the reasons that disorders occur in the classroom is because it is a very artificial kind of place. Children from various backgrounds are brought together and caused to learn by specified methods within the confines of a single room. In such unnatural circumstances almost anything can go wrong.

The following disorders are not claimed to be a complete list, because, if all the strange disorders that have taken place in classrooms were reported, the list would be without end. But this list contains the commonest types of disorder and most of what goes wrong in classes can be linked with one or other of them. In each case possible causes are suggested for the disorder.

1. *Inattention and Restlessness*

(a) Attractions or disturbances outside the classroom may cause this type of disorder inside the classroom.
(b) Excess energy accumulated by children kept passive and inactive for too long may bring it.
(c) Children who are physically or mentally tired often react in this way.
(d) Lessons which are boring tend to make children inattentive or restless.

2. *Noise*

This is not necessarily a bad thing. A certain amount of noise is bound to be associated with some activities and a good laugh is beneficial to everyone from time to time. It is only bad when the noise becomes distracting and reduces efficiency.

(a) Over-eager children with bad manners, who snap their fingers and call out 'I sir!' when they know the answer to a question or wish to be chosen for some activity, are a source of disruptive noise.
(b) Comments by children about something they have just been asked to do or about an exercise or test that has just been returned to them may result in a loud buzz of conversation which is disturbing.
(c) Idleness, resulting either from the absence of the teacher from the classroom or from the completion before time of work set, often builds up a crescendo of noise.

(d) Private or group arguments may lead to quarrelling and a good deal of disturbing noise.

(e) Whispers and subdued laughter, although not producing much absolute noise, can have a very disturbing effect on an otherwise quiet lesson.

3. *Deliberate Naughtiness*

This can take a great many forms such as rudeness, disobedience, lying, stealing and so on. But it is always an expression of some kind of rebellion in the child. The actual cause may lie deeply buried in the child's nature, or it may be a superficial expression of the independence that growing children like to assert. It is always worth trying to find the root cause, for rebellion is ultimately a spiritual problem and treatment must reach the spirit.

4. *Unexpected Events*

Many things can upset the normal routine of a class, and, although the causes of disturbance so far mentioned are in a sense unexpected, the teacher can have a fairly good idea of who or what will cause them. He knows which children are prone to inattention, noise or naughtiness. But unexpected events are those that happen out of the blue and cannot be anticipated. The following are examples:

(a) Unexpected visitors to the school may call the teacher from the classroom.

(b) Children sent by the headmaster or other teachers to make announcements in various classrooms invariably cause some interruption.

(c) Children sent out of the class by the teacher to fetch something he has forgotten cause unexpected disturbances to the rest of the class. They are due to bad planning and preparation.

(d) The overturning of a pot of ink on someone's clothes or the accidental injury to a child in the classroom.

5. *Indiscipline*

Harmony in the classroom is dependent upon the keeping of rules and good relations by the members of the class. Any breakdown in the personal relationships or in the observance of rules leads to disorder. Here are some examples:

(a) Struggles which result from several children trying to enter or leave the classroom at once instead of one at a time.

(b) Demonstrations for which the children are brought round the teacher's table often bring about a good deal of pushing and bad behaviour.

(c) Selfish children who are not disciplined will rush forward to get a place first or be first to collect equipment when it is clear there will not be sufficient for everybody.

ACHIEVING GOOD CLASS MANAGEMENT

There are two laws of good class management. The first is that prevention is better than cure. The second is that self-control is better than imposed control.

The meaning of the first is that if a trouble is allowed to begin it will grow worse and the medicine required for a cure may have to be drastic. If, however, the trouble is anticipated and preventative measures are taken, it will not arise and all will be well.

In the second case attention is drawn to the difference between willing and unwilling pupils. Somehow you must turn children who are unco-operative and unwilling into co-operative and willing friends. The treatment is twofold. It requires that you encourage willingness by incentives, rewards and commendation while you discourage unwillingness by punishments of various kinds. Teachers who use only one of these approaches are working only at half power.

Good and bad behaviour are habit-forming. Each tends to become established as a way of life if formed in childhood. But good and bad behaviour do not come naturally. Both are learned mainly by imitation, so that if bad behaviour is to be cured, it must be unlearned. This requires that the child be taught to behave well by compulsion at first. The motivation for this may be self-imposed, expressed in a desire to be good, but in children, it normally has to be externally imposed at first until the habit is formed and the reason for wanting to be good is established.

An analogy may help. If we liken children to motorists driving cars, then good order depends on two things, namely the drivers keeping to the rules of the road and being competent in controlling their cars. If a driver decides to drive on the opposite side of the road from everyone else he will cause havoc. He must be made to abide by the accepted laws of society. When a driver is a learner he is in danger to others and himself and must be taught to drive well before he is left to control his own vehicle. In the same way children must learn to abide by the laws of society, be trained to control themselves and see that their actions affect other people.

To be successful in achieving good class management you must pay attention to two qualities, namely authority and efficiency.

AUTHORITY

Without authority, any management is bound to break down. If everyone does as he pleases, chaos results and work is impossible. Consequently every headmaster must command authority in his school and every teacher must possess it in his classroom.

Here are things you must do if you are to command the respect of the children and wield your authority well.

(a) *Maintain your dignity*

Do not lower your dignity by getting involved in unseemly arguments or physical struggles with children. Be a good example of what you would like the children to admire. Avoid trying to be popular with the children; it is the mark of a weak character.

(b) *Be consistent*

Do not be strict with discipline one day and slack another. Do not show favouritism to any pupil. In dealing with misbehaviour, be just and fair and do not allow your emotions to control your actions. Never take action over a child if you have lost your temper; wait until you have regained it. Respect the children and their rights. Remember that even the most dirty, unlovable child has as much right to kindness as any other. A sympathetic and understanding attitude to children is not a sign of weakness but of strength.

(c) *Be firm*

Your authority will quickly be lost if you appear to be uncertain in your decisions. Do not tell children what you want them to do apologetically, but speak to them in decisive tones showing that you expect obedience. When teaching a class for the first time it is better to be too firm than too easy. It is easier to slacken the degree of strictness than to increase it once authority has been lost. If an offence or disorder occurs, act at once. Delay may be interpreted by the children as weakness. That is not to say that you must deal with the offender at once. It may be sufficient to say to him that you will see him later. If you say so, be sure that you do. An unkept promise is a lost point. Never make a threat without carrying it out.

(d) *Use punishments and rewards wisely*

Punishments should aim at stopping and correcting a practice which has begun and is bad. Rewards should be used to acknowledge success and effort. They can also be used as incentives. Punishments should never be so light that they become ridiculous and rewards should never be so easy to get that they lose their worth. Children, trained well, should outgrow the need for punishments or rewards.

Never allow punishments to become a form of revenge. Their object must always be to correct and reform. Children can become hardened to punishment if too frequently or undeservingly given, so always make your punishments appropriate not only to the offence but to the offender. Do not use big punishments for little offences. 'You do not need to shoot a mosquito to kill it,' or as someone has put it in another way, 'Don't use your trumps on trifles.'

(e) *Be self-critical*

By trying to see yourself as the children see you, you will be spared embarrassment in many situations. To carry authority, you must be aware of both your strong and your weak points. Personal mannerisms and undesirable character traits are what you must be most careful about. Mannerisms may make you an object of ridicule to the children and bad character will undermine any respect the children have for you.

You should also use your common sense. Sometimes as a joke or to escape punishment, children will try to fool you. Do not allow yourself to be fooled. Use your judgement. 'There's no fool like an old fool.'

EFFICIENCY

The efficiency of a business is the measure of its management and in a school the efficiency of a class is the measure of its teacher. Here are a number of points that will help you to be efficient:

(a) *Be methodical*

Tidiness comes with a tidy mind and is necessary for efficiency. Precious time is wasted if you have to stop and search for something you have mislaid or remember putting away in a safe place! Have a fixed place for everything normally needed in the classroom and keep every cupboard neat and tidy.

(b) *Organize all routine matters*

Make simple rules for all routine matters like handing in and giving out exercise books, cleaning the blackboard, asking to go to the latrine, leaving the classroom in lines, shutting the windows at night and so on. But do not make the mistake of making too many rules. Rules should be simple and their purpose clear.

(c) *Be punctual*

Slackness with regard to punctuality is indicative of poor efficiency and lack of recognition of the value of time. Unpunctuality has a very damaging effect on the running of a school and reveals poor management. You should always show a good example by arriving at school in good time and going to classes punctually. Failure to do so has a bad effect on the morale of the children. A punctual but unhurried way of life is much better testimony to efficiency than the person who is always at the last moment storming in like a tornado.

(d) *Knowing the job*

You need to have knowledge not only of what you teach but also of the pupils you teach. Of the subjects you teach, you must always know more than the pupils. You must keep up to date so that your teaching is true of today and not just of the time when you were a student in college. Read widely and deeply and share with your pupils some of the excitement and interest you enjoy in finding out things.

You must also know your pupils. It is not a class you teach, but individuals, all of whom are different, having varying abilities, interests and problems. You must take every opportunity you can to get to know your children so that you can find the most efficient way to teach them. In business firms, managers do not spend their energy on the parts of the business that are going well; they concentrate on the problem departments and the problem personnel. So should the teacher.

(e) *Be prepared*

Most disorders in the classroom have a connexion with bad lesson preparation. A teacher who is not sure what he is going to teach or who has to begin collecting his apparatus after the lesson has begun can hardly expect the children to prosper under his teaching. To be well prepared requires forethought and attention to detail. But it repays the time and effort spent by giving a quiet mind and high efficiency.

(f) *Be energetic and enthusiastic*

If a thing is worth doing, it is worth doing well. No teacher who is half-hearted in his job is going to be a success at it. Show enthusiasm in your teaching and a lively interest in all that you do.

Section B

THE PREVENTION AND CURE OF DISORDERS IN THE CLASSROOM

1. Discuss ways in which the classroom can be made a less artificial kind of place than it often is, and one in which the children can feel happy and at home.

2. Discuss the types of disorder enumerated on pages 248–250 and how they might be prevented. Below is a list of some ways which would help. Enlarge the list and say which ways might be appropriate in each kind of disorder.

(a) Make the lesson interesting and provide some kind of activity.
(b) Vary the methods of teaching so as to provide variety.
(c) Set sufficient work for the brightest pupils and suitable work for the slowest.
(d) When asking questions, name the pupil whom you want to answer.

(e) Explain your instructions very clearly and slowly before letting children begin a job.
(f) Ensure that every child has his book, pencil, rubber, ruler or whatever he needs ready on the desk before you begin to teach.
(g) Visit the homes of children who you believe are not being cared for properly at home or who need special attention from their parents.
(h) Make a rule that all visitors to the school must see the headmaster before going to any classroom to see a pupil or member of staff.
(i) Organize a Parent-Teacher Association to draw parents and staff more closely together.
(j) Demand high standards of courtesy, obedience and integrity from all pupils. Punish those who fail to maintain the standards set by the school.
(k) Have a set of school rules and some for the classroom too.
(l) Appoint prefects or monitors to help the staff with routine duties.
(m) Make up rotas of children for daily chores.
(n) Seat potential trouble-makers near to you but not together.
(o) Always come to the classroom with everything you need for your teaching.
(p) Satisfy the curiosity of children by letting them outside to see anything of great interest which happens in the vicinity of the school.

3. Watch a good, experienced teacher at work and note how he deals with unexpected happenings and how he tries to anticipate disturbances or disorders and thus prevent them.

4. What kinds of incentives and rewards can a teacher make use of to encourage the enthusiastic co-operation of his pupils in the various subjects of the curriculum? What difference is there between using incentives and rewards, and bribery?

5. What kind of punishment can a teacher use to discourage lack of co-operation and stop misbehaviour? The list that follows are all methods used in schools. Discuss the appropriateness of each:

(a) Giving a verbal rebuke.
(b) Publicly drawing attention to a child's misbehaviour so that he feels ashamed of himself.
(c) Giving lines to write.
(d) Keeping the child in at playtime or after school.
(e) Giving a child an unpleasant job to do.
(f) Setting a child to do physical labour.
(g) Fining.
(h) Informally smacking a child's fingers.
(i) Formally caning a child.
(j) Making a child take up an uncomfortable position and keep it.
(k) Sending a child to stand outside the room.
(l) Sending a child to the headmaster.

(m) Reporting a child's misbehaviour to his own parents
(n) Making the child sit at the front of the class.
(o) Denying the child privileges or rewards to be enjoyed by the other children.

6. Discuss the value of the following procedures by a teacher:

(a) Pausing silently a moment to call attention.
(b) Making public what you see a child doing in secret as a means of restraining the child's misbehaviour.
(c) Staring steadily at a pupil who is misbehaving.
(d) Speaking just loud enough to be heard so that the children are forced to concentrate on listening.
(e) Encouraging a willingness amongst pupils to admit guilt when challenged.
(f) Keeping your eyes on all the children.

7. Explain what you think is meant by the following statements:

(a) 'You can control a class with your voice, eyes and ears.'
(b) 'Class control is not what it should be until it is effortless.'
(c) 'Control the class from the front.'

8. What differences and similarities are there between the methods of management used in the army, business firms and classrooms? What can teachers learn from the first two?

9. Discuss the analogy outlined on page 250 explaining why children must be taught to conform to laws before they can be expected to abide by them.

AUTHORITY

1. Give examples from your experience of teachers who have lost their authority over their pupils by failing to follow the five pieces of advice given on pages 251–252.

2. Discuss fully each of the pieces of advice given in this chapter for maintaining authority in the classroom. Consider them also in the light of what is said about dignity and authority in Chapter 10.

3. Challenge or criticize the following statements:

(a) 'Dignity is an old-fashioned concept.'
(b) 'Only hit a child when you cannot help yourself.'
(c) 'All children need is love.'
(d) 'Disciplinarians aren't teachers, they're inhuman!'
(e) 'Corporal punishment should be used only as a last resort.'
(f) 'Corporal punishment is a primitive means of taking revenge and asserting superiority.'
(g) 'The eccentric professor is an endearing figure of intellectualism made human.'

4. Make a list of the mannerisms you have noticed in teachers such as chalk tossing, finger cracking, various oral expressions, etc., and discuss the effect they had on you. Test your own behaviour to see if you are developing any mannerisms.

EFFICIENCY

1. Give examples from your experience of teachers who have been less successful than they might have been because they failed to follow the advice on efficiency on pages 253–254.

2. Discuss the advice given for efficient class management and suggest in greater detail how it can be put into practice.

3. Comment on or criticize the following statements heard in the staffroom:

(a) 'I'll muddle through somehow!'
(b) 'This isn't a room, it's a dump!'
(c) 'I needn't hurry to my class, they're always late when they come back from the farm.'
(d) 'I'm just managing to keep ahead of the class with this ancient history stuff that I have to teach.'
(e) 'These kids really had me on the hop today with their questions.'
(f) 'I wonder what I should teach them today?'
(g) 'Put up the flags, Mr. Ngumi is using a visual aid today!'

For Further Reading

General Books

H. J. BYRNE. *The Teacher and His Pupils.* O.U.P.

Special Books

J. DUNHILL. *Classroom Management.* University of London Press.

14. THE APPROACH TO TEACHING

Section A

WHAT TEACHING IS

THE early idea of teaching was that a group of children was gathered under a teacher who commenced to 'instruct and drill' them in knowledge that was considered of importance to life such as the 3 R's. This idea is still widely felt by people who think that knowledge can be pumped into a child like petrol into a tank and that when he is full he is educated. The error of this view lies in its adult assumption that learning is a passive process in which the teacher does the filling and the pupil is filled. There is error too in the idea that learning is dependent on teaching.

The early educational reformers recoiled from this teacher-centred type of education and recognized that children are not small adults; they do not necessarily learn best by methods suited to adults, but learn almost as much from their environment as from any formal teaching. So the reformers likened good teaching to gardening in which the teacher is the gardener and the pupils are the plants. In this analogy, the plants grew and developed under the tender care of the gardener who watered and weeded so that they might grow perfectly. But even this concept made children too passive in the process of learning and did not show the two-way relationship that should exist between a teacher and a class of lively children.

The ideal teacher knows all about his children, how they grow, the dangers that surround them, their needs and capabilities as individuals at each stage in their development. He knows that they are learning indirectly from their whole environment as well as from his direct teaching and he seeks to make the best use of both means. He knows the purpose of his efforts and care, and takes appropriate measures to see that his purpose is fulfilled.

The outcome of this approach to teaching, interpreted in terms of the school and the classroom, means that modern teaching is *child-centred* and tries to provide an educational environment; it makes use of educational activities, play for the younger ones, and changes its character in accordance with the age and ability of the pupils. It is not a stereotyped process.

ACTIVITY

Activity is one of the keynotes of modern education. Formerly there was very little of it for pupils and they had to sit up straight with arms folded for lesson after lesson while the teacher droned on, teaching perhaps, the capes and bays of South America. But all that has changed now and teachers make a note in their lesson notes of just what pupils' activities they propose to introduce into their lessons. They use activities because they know that children learn best by doing and find interest and enjoyment in activity.

Some teachers have too limited an idea of what activity is. They think of activity only as physical movement and are afraid to use it lest they lose control over their class. Both assumptions are wrong. There are many kinds of activity, some of which involve no physical movement and make no noise. Moreover a class which is absorbed in what it is doing is much easier to control than one which resents every moment it is required to 'Sit up and sit still'.

It must be remembered that activity is not an end in itself but a means to learning. If this is kept in mind, it will help you always to use it in the right way.

Activity can be used in different ways. Here are the three main ones:

(a) To develop a skill such as reading, drawing, singing, etc.
(b) To discover new knowledge through investigation, experiments, exploring, etc.
(c) To apply knowledge learned to useful ends such as the care of animals, farming, modelling, etc.

Sometimes a whole lesson or series of lessons may be conducted almost entirely as activity lessons. Practice and practical lessons are like this. But in others the activity is used to support the teaching. An extension of the use of activity as a technique for teaching has given rise to certain methods much talked about in educational circles. They are:

(1) Playway Methods.
(2) The Project Method.
(3) Centres of Interest.
(4) The Assignment System.

There is nothing mysterious about these methods. They are simply attempts to use activity purposefully.

1. *Playway Methods*

The basis of this approach stems from educational reformers like Froebel and Montessori who appreciated the part served by play in learning. We saw what this was in Chapters 5 and 6.

Froebel recognized that the child is naturally creative rather than receptive and that self-activity is one of the most important ways in which he learns. Montessori saw the value of play for learning and used carefully designed 'playthings' to help feeble-minded children to learn so well that they actually outstripped normal children in public examinations. She also made the classroom into a place where the child was free to move around and work at his own speed and in accordance with his own preferences.

Today, play is used in all kinds of subjects in such forms as games, dramatization, drawing, modelling and many others. Another interpretation is what is used in many infant classes and is called 'Free Activity'. In such periods, the children can choose to do one of a number of different kinds of activity such as drawing, modelling, sewing, craftwork or certain kinds of play with other children. The value of this lies in the freedom it gives the child to choose the activity he likes best and the scope it gives him to experiment with the knowledge and skills he is acquiring. It helps him to learn and be independent, to live and work harmoniously with others in the class, to express himself and gain experience, all at the same time.

2. *The Project Method*

This method has arisen from the educational work of Dewey. Living in America at the end of last century, he saw that with growing urbanization, children were losing a great deal of the practical knowledge and sense of co-operation that exists among rural people. He thought that schools should make up for this lack.

During a project, the regular teaching in certain subjects is suspended for anything from a few days to several weeks. But that does not mean that these subjects cease to be taught. For example, if the project were the preparation of a booklet about the local tribe, reading would be covered by the study of such records as can be found and the checking of the written work handed in by the various groups. Writing and composition would be well served by the need for written accounts about every aspect of the tribe. Geography and history would likewise play a part in the study; so too rural science and nature study. The appearance of the booklet would be greatly enhanced by the inclusion of drawings to illustrate the text, thus incorporating Art.

The teacher's task in a project is simply to guide the children as they find need for his help. This does not mean that he leaves them to themselves. Throughout, he should be encouraging his pupils by showing a lively interest in their work, and assessing the value of the project by the quality of learning shown in the work they produce.

Thus the Project Method makes learning *real* by presenting a real task for the children to tackle. It puts responsibility on the pupils and gives scope for their initiative. It makes learning clear because it supplies a concrete objective so that the children know at the end if they have succeeded. It makes learning *social* because it is a combined effort, each individual contributing his energy and skill to the work of the group so that the final object of the project can be attained. It calls on qualities of leadership from those children in charge of groups. Throughout, the project is helped by the natural interest and enthusiasm it generates.

3. *Centres of Interest*

This approach is a reaction to the disadvantages of the Project Method, while keeping its main advantages. In it, a central topic of interest to the pupils is used to co-ordinate all their learning for a length of time that may be as short as a few hours or as long as a few days. The skill of the teacher lies in his knowing which topics are suited to this kind of treatment. For example, 'The Post Office' would be a good Centre of Interest because it gives scope for such studies as reading, composition, arithmetic, general knowledge, art and handwork. It is also a topic that is generally interesting to children and one in which the children's knowledge is sufficient for them to know how to go about studying it. A topic such as 'Japan' would not be a good one because there is no bridge to link it with the children's present knowledge or interest; also it would be difficult for the teacher to supply the children with satisfactory study material.

Thus, although the Centre of Interest Method may appear similar in many ways to the Project Method, it differs fundamentally in its object. A Project aims at producing a finished work such as a book, an exhibition, or some tangible conclusion. A Centre of Interest study is not concerned with producing these but simply in using the driving force of interest to co-ordinate the learning of the pupils in different subjects. It is not subject to the waste of time that some projects may incur when they tackle too ambitious a task. At the same time, it can make use of all the social advantages of the Project Method and the refreshing novelty of getting away from an education bound by subjects.

4. *The Assignment System*

Every time you are given an essay to write or some pages of a book to read or some arithmetic sums to work out, you are being given assignments. Usually you are expected to do these on your own so that you can go at your own speed and your individual progress can be gauged by the teacher.

This system of learning using the skilful organization of individual assignments was worked out to a fine art by Helen Parkhurst in Dalton, U.S.A., and came to be known as the Dalton Plan. In this, the child was given responsiblity for his learning. The teacher prepared assignments in each subject for a month at a time. So long as he completed them in the time, the pupil could work as he liked. Instead of the school being divided into form-rooms, it was divided into subject-rooms to which the child would go when doing the assignments for each particular subject. In each of these rooms were adequate books and equipment which he could use. There was also a teacher in each room who was available for advice and guidance; this teacher saw to it that the children worked in an orderly way.

You will see that this method, with its emphasis on the individual, is the very opposite of the Project Method and Centre of Interest approach, which encourage group work and shared tasks. Used well, the method has several advantages. It encourages initiative and independence, and provides pupils with the maximum amount of individual practice. By giving the pupil an occupying task, the teacher is freed to give individual attention to those pupils who most need his help.

Used badly, the Assignment System degenerates into an easy way out for the teacher and is unproductive of learning for the pupils. Asking children to read a passage in a textbook without telling them what to look out for is almost useless as an assignment; so also is one that lacks any natural or built-in interest.

An assignment should always be a task which is within the capability of the pupil and has some interest for him. It should always produce a result that can be seen so that the pupil can see what he has achieved and the teacher can assess the pupil's progress. Taken to its logical conclusion, the Assignment System is perfectly represented by Machine Teaching which is briefly described on page 265.

DIRECT TEACHING

This is the commonest form of teaching and is the only form used in some schools. Too often, however, it is used badly and *teaching* is emphasized at the expense of *learning*. This is a serious fault. Good direct teaching recognizes three approaches, namely, collective teaching, group teaching, and individual teaching. To use only one or two of these approaches means that variety is limited; to use them all greatly improves the quality and effectiveness of your teaching.

1. *Collective Teaching*

The essential feature of collective teaching is that everybody in the class is taught the same thing at the same time and at the same speed. The method came to the fore in 19th Century England when huge classes, seated row upon row were taught by a single teacher who was quite unable to allow for any individual differences there might be amongst the pupils. The same characteristics of teaching were used when the universities began to attract greater numbers of students. Today some university lecture halls are used by professors to teach several hundreds of students simultaneously. The same idea has been used in closed circuit television in universities and schools in America whereby a single teacher can address thousands of students or pupils at once. And of course in normal broadcasting the number of listeners or viewers tuned into a single broadcast may be several millions.

Collective teaching is very economical in time, effort and money because only one teacher is required for all the pupils in the class. Moreover, it is economical in its needs for teaching apparatus; a single blackboard will suffice whether the class has four or forty in it. There is obvious economy of effort too in only having to say a thing once to a class instead of forty times as you would if you spoke to each individual.

If we consider bigger classes than are possible in schools, like a radio class of 100,000 pupils, then the advantages of economy become enormous. In such a case, a single teacher does the work of 2,500 teachers and certainly does not need to be paid in proportion! Likewise even if he spends only the equivalent of sixpence per class of forty for visual aids or teaching equipment, he will have more than £60 at his disposal.

In practical schoolteaching, the collective method is useful when economies must be made in staff or where equipment is very limited. On occasions, when the whole class must be told the same thing or have the same thing shown to them, then the collective method is the obvious choice. Generally speaking too, collective teaching makes class control easier because you can see all the children at once and can see easily any child who is not conforming to your instructions. While all the others are doing what they have been told to do, he is conspicuously out of step.

The weakness of the method is that it encourages a good deal of passive learning. The teacher is the active member of the unit and in a normal class, the pupils have a forty-to-one chance against getting an opportunity to contribute positively to the lesson at any moment. This is far from being an ideal educational principle. Consequently the method should be used only for what it is best suited to achieve.

2. *Group Teaching*

Group methods are sometimes regarded as new but have in fact been used for a very long time. The fact that schools divide their children into classes instead of teaching all the children together is a recognition of the need for grouping. In big schools, further grouping is carried out by streaming the school into A, B and C streams according to ability.

Group methods give more children an opportunity to contribute actively to a lesson than do collective methods. In a group reading lesson for example, as many children can read simultaneously as there are groups. Thus each child gets more practice. Grouping also allows children of similar ability to learn together.

This helps the slow by enabling them to proceed at their own speed and does not hinder the bright who are capable of so much more.

Group methods are an appropriate means of dealing with practical lessons for which there is insufficient equipment for every child. One set of equipment per group will cut your needs by five or six depending on the number of children in each group. Group methods are also appropriate for tackling jobs too big for the individual and too cramping for the whole class. For example, in projects, the task can usually be divided up into several parts and one allocated to each group. In such cases the groups enjoy the satisfaction of contributing their little part and take a pride in the finished whole.

Group *leaders* are an important requirement for all group work. They provide an essential link between the teacher and the rest of the pupils. They and the groups they lead should be fairly permanent for much time can be saved if, in a particular subject, all you have to say to the pupils is 'Go to your groups now!'

3. *Individual Teaching*

The individual method is used every time the children in a class are asked to write an essay or tackle a set of arithmetic problems. Each child works alone and his finished work is the result of his unaided effort. It is assessed and criticized by the teacher individually. When homework is set or an assignment given, it is the individual method that is being used.

It is the individual method that is adopted for all correspondence courses though there is no direct contact between pupil and teacher. Even in radio and television broadcasting the approach is individual though the method is collective. The successful broadcaster gives the impression that he is speaking only to you and you are the only person in his audience.

Today individual teaching is spreading in the schools of America by means of teaching machines. In their most advanced form each child sits in a tiny cell in which there is a dial like that used on a telephone. Prepared at the beginning of the day by his teacher who has told him what ground to cover, the pupil goes ahead dialling numbers in his cell and getting recorded lessons transmitted by wire from a central station. Some of these lessons are aural only, others are projected on a television screen in front of him in colour or black and white. He can dial for any of thousands of microfilmed books and read them on his screen at his own speed. He can go back on pages if he likes or he can skip pages at the touch of the dial. In practical work he can record his speech or choose his answers from possible answers given. The machine will tell him if he is right. If he is wrong, the machine will show how he went wrong and where he should check up to correct himself. If he prefers, the pupil can dial the number of his teacher and say he would like some help or ask him to check his work. Simpler teaching machines and forms of programmed learning are already being used in some parts of Africa.

The value of individual teaching lies in the way it allows the pupil to proceed at his own speed and to the limits of his capacity. It helps him to develop initiative and independence if his teacher does not fuss over him too much. For the teacher who gives carefully graded assignments in his teaching, the method gives him a clear record of every pupil's progress. Indeed no programme of teaching can be successful that does not have something of the individual approach in it.

On the other hand, individual teaching denies children the social and emotional benefits offered by collective and group teaching. Without the companionship that doing things together brings and the energy that team competition releases, school would be a very dull place for the child.

INDIRECT TEACHING

Modern teaching recognizes that the process of education is not a simple matter of give and take but is a process which goes on deep down in the personality all the time, influenced by *environment* as well as by teachers. This realization has made teachers much more conscious of the value of the school and the classroom as aids in teaching to support their own programme of direct teaching. Their aim is to provide an *educational environment.*

A classroom that provides a truly educational environment is a place where children will learn *unconsciously*. In it they will find interesting things like pictures about current affairs, working models of things they are learning about, display shelves with exhibits of interest for nature study and toys and books which they can use whenever they have finished their set work satisfactorily before the rest of the class.

Such an environment can be a delight to children and is extremely educational. Its value lies partly in the environment itself, which, if constantly changing as the needs of the children change, provides a powerful educational influence additional to, but in harmony with the teacher. But its main value lies in the spontaneous interest that such an environment arouses in the pupils. This response is one of the most powerful forces for stimulating learning.

The educational environment of the classroom should provide something of the excitement of a market, the awe of a museum, the fascination of a zoo and the interest and enjoyment that can be gained by browsing in a library. The main difference is that the classroom environment is not under the control of different people as these other places are, but under your control, so that what the children see and hear and do is what you provide them with, and it is all geared to what the children are ready and able to learn. This is controlled learning at its most imaginative.

PUTTING THEORY INTO PRACTICE

In the teaching profession as a whole there is a reluctance to accept quickly the changes that educational research is constantly offering. Because of this you may find difficulties when you try to introduce into your school the principles and methods you have learned at college. My advice to you is to move with caution and begin at home—that is, in your own classroom. Go about putting your theories into practice there. Make it a laboratory where you can demonstrate proofs that convince people. Many teachers are tired of theories, a lot are cynical because they have been disappointed so often, others think the new methods are not worth the effort. You must prove that your methods *do* work and that they *are* worth the effort. Approach the task sensibly, use tact with your headteacher and colleagues and do not argue with them merely for the purpose of proving yourself right. Aim at getting their co-operation and eventual participation because the more quickly you achieve this the more rapidly and effectively can changes be introduced.

Do not try to run before you can walk. You will find yourself extremely busy in the first year or two just keeping abreast of things. If you try to do too many new things at once you will fall and maybe join the ranks of cynics in the staffroom. Do only what you can, and do it well. Do it in a way that is appropriate to your area. Do not try to build a university library in the bush and do not wait for television before you use pictures. Have faith in your aims and courage to carry you through disappointments. But at all costs, put your principles into practice.

Section B

WHAT TEACHING IS

1. Discuss examples you have seen of people who still regard education as something that can be pumped into a pupil.

2. What relationships do teaching, training and drill have to one another in the field of education?

3. Can you think of an analogy which reflects most of the important points that must exist in a good pupil-teacher relationship?

4. Discuss the meaning of 'child-centred education'.

5. Examine the methods used in your Demonstration School and compare them with the methods you remember being taught by at school. What differences do you see and what results do they produce with regard to the following?

(a) Learning.
(b) Enjoyment.
(c) Behaviour.

ACTIVITY

1. Make as complete a list as possible of classroom activities used in teaching by adding to the list below. Then group them according to those that are quiet, less quiet and rather noisy.

Thinking.
Listening.
Watching.
Discussing.
Reading.
Writing.
Drawing.
Miming.
Exploring.
Experimenting.
Collecting.
Making things.
Playing games.
Keeping pets and other living creatures.

2. Discuss how the various activities you have listed in 1 above can serve the three functions of developing skills, discovering knowledge and applying it.

3. Discuss the value of the following:

(a) *The nature corner*—a place where nature specimens, including living ones like tadpoles, mice, etc., can be displayed and studied. The things should be constantly changed.
(b) *The curiosity table*—a table placed in the classroom on which children can place things they have found interesting or on which the teacher can place interesting objects for the children's study. The things should be changed almost daily.
(c) *Community hours*—sessions in which the whole school gets together and mixes so that old and young can play together or work together and learn to live as a community.

4. What activities lend themselves to discovery and guided discovery? These terms are used in Chapter 5 in relation to learning. Check back if you have forgotten.

5. Make a habit of noting the pupil's activity in your lesson notes so that you are compelled to give careful thought to the matter when preparing the lesson.

THE PROJECT METHOD

1. Find out more about John Dewey, the American philosopher and educationalist who propagated the Project Method.

2. Discuss what requirements are needed of a topic to make it good for study by the Project Method. Make a number of suitable suggestions for topics which are included in the school syllabus.

3. What school subjects lend themselves to inclusion in project work and which do not?

4. It is usual to teach the subjects not included in a project in the normal way. What changes would you have to make in the time table to accommodate both the project and the other subjects?

5. What social training is the outcome of well-conducted projects?

6. Discuss the extent to which the principles of democracy can be applied when carrying out a project.

7. Carry out a project with a group of your fellow students on a subject chosen by yourselves. At the end write notes which would be helpful to someone else about to undertake a project. Concentrate your notes on the following points:

(a) How to decide on a suitable subject.
(b) What school subjects can be included.

(c) How the school subjects can be linked to the project.
(d) How to organize the group tasks.
(e) How to co-ordinate the groups at work.
(f) How to conclude the project.

8. Discuss the value of putting on a play, producing a class magazine, or presenting an exhibition as a project. Discuss the benefits and problems connected with each.

CENTRES OF INTEREST

1. In what ways are Projects and Centres of Interest alike and in what ways do they differ?

2. Suggest subjects that might make suitable Centres of Interest for:

(a) A township school.
(b) A rural school.

3. What are the educational advantages of using Centres of Interest as a teaching method from time to time?

Discuss this in relation to:

(a) Psychological Motivation.
(b) Factual Learning.
(c) Learning Skills.
(d) Social Training.

4. The following is the plan you would draw up in outline before making a Project or Centre of Interest study. Study it carefully.

(a) Body of knowledge and skills to be covered.
(b) List of books required by you and the children.
(c) List of visual aids and other equipment needed.
(d) Number of groups.
(e) Activity suggestions for the groups.
(f) Probable development of the plan.

Work out a detailed plan for teaching a class in your Demonstration School for two days using the Centre of Interest method. Discuss your plan with your fellow students for criticisms and improvements.

Why would it be wrong to go to that class and put your cut and dried plan into action? Explain the function of the teacher in the centre of interest method.

THE PLAYWAY METHOD

1. Find out more about Montessori and Froebel who were both pioneers in introducing playway methods.

2. Make a list of play materials and play activities popular with children in your area and discuss which amongst them could be used in school.

3. What function does play serve in the learning process? Check back to Chapters 5 and 6 if you have forgotten. Explain therefore the purpose of the teacher's supervision of children's play activities.

4. Watch an experienced infant teacher taking a class of children for free activity and note the following points:

(a) The number of activities offered from which the children can choose.
(b) The materials and equipment available for the children and how they are given out and collected.
(c) The degree of interest, concentration and enjoyment observable among the children.
(d) The freedom allowed the children to walk about and talk to each other.
(e) What is done about any child who wants to change his activity.

After the lesson, discuss what the children learned and how they reacted to this freer and more informal type of education.

5. What dangers should a teacher beware of with regard to his pupils, their learning and himself in using the playway method?

6. What are the advantages and disadvantages of playway methods?

THE ASSIGNMENT SYSTEM

1. Find out more about Helen Parkhurst and the Dalton Plan.

2. Choose a skill subject and an information subject taught in your Demonstration School. Study the scheme of work for the material to be taught in each of them the following week. Break up the material into a series of assignments.

Ask the class teacher to select six pupils of varying ability from the class to carry out the week's studies in the two subjects you have selected by means of your assignments instead of by normal teaching. Compare their progress with the rest of the class at the end of the week.

You should note the following points with regard to drawing up your assignments:

(a) Write out your instructions for what the children are to do very clearly. Give children all the book titles and page references and other information they will need.

(b) Make the material to be covered in a lesson form a stage consisting of several assignments of graded difficulty so that the slowest will get something done and the fastest will have enough to keep them busy.

(c) In each stage of the assignment give the children something concrete to do which they have to submit to you to show proof of what they have done. These should be in a form that you can grade.

(d) The pupils should submit each stage of the assignment for your grading and approval before they are allowed to proceed to the next stage.

(e) It is convenient to produce the assignment in duplicated form so that all you need to do is to hand out the sheets to the pupils.

3. Criticize the following assignments and say what is wrong in each case:

(a) 'Read Chapter 4 before the next lesson.'
(b) 'In this lesson I want you to draw anything you like.'
(c) 'Revise all that we have covered for the exam.'
(d) 'I want someone to bring an earthworm for our lesson tomorrow.'
(e) 'See if you can do the sums in the next exercise and I'll be back when I can.'

4. Discuss examples of teaching by assignment already used in your schools and how the system could be extended and improved.

5. What are the advantages and disadvantages of the assignment system?

COLLECTIVE TEACHING

1. What is the essential difference between a lecturer teaching 400 pupils in a hall and a radio teacher teaching the same number in ten different classrooms?

2. What advantages does the classroom teacher have when teaching his pupils as compared with the radio teacher who must teach from the broadcasting studio?

3. What are the mass media of communication? In what sense are they collective and in what sense individual in their methods? Discuss their value to education.

4. Assess the advantages and disadvantages of collective methods.

5. Give examples of lessons for which collective teaching methods would be quite suitable and others for which they would be quite unsuitable.

GROUP TEACHING

1. Groups may consist of children of mixed ability or similar ability. What kinds of subject and lesson benefit from each type of grouping? What is the purpose of such grouping?

2. What practical requirements are necessary for grouping with regard to the following?

(a) School furniture.
(b) Equipment.

3. When is it wise to have semi-permanent groups and when is it better to change from time to time?
Discuss this in relation to:

(a) Streaming the school.
(b) The house system.
(c) Physical education.
(d) Skill subjects.
(e) Information subjects.
(f) Projects.

4. Discuss the qualities a teacher should look for when choosing pupils as group leaders.

5. What are the advantages and disadavantages of group teaching?

INDIVIDUAL TEACHING

1. Discuss the essence of individual teaching found in personal tutoring correspondence courses, radio and television. What does this personal relationship contribute to learning?

2. What chance do you think machines have of taking over the job of the classroom teacher? Discuss the implications to education if they did.

3. Discuss ways in which the teacher can give personal attention to his pupils.

4. What are the advantages and disadvantages of individual teaching?

5. Find out more about teaching machines and programmed learning.

INDIRECT TEACHING

1. Discuss the educational value to the child of the following things in the life of a school:

(a) Morning assembly and prayers.
(b) Playtime and the playground.

(c) Organized games.
(d) Chores.
(e) School rules.
(f) School property available for use by the children.
(g) The library.
(h) Concerts.
(i) The house system.
(j) Prefects.
(k) The appearance and comfort of the school and its grounds.
(l) The Nature corner.
(m) The Curiosity table.
(n) Community hours.
(o) The farm or garden.
(p) Keeping weather and farm records.
(q) Music played during short school breaks or intervals.
(r) Pictures hung on the walls.
(s) Local studies.
(t) A Parent-teacher association.
(u) Clubs and societies.
(v) School lunches.
(w) Speech days.
(x) Prizes.
(y) Competitions in non-academic subjects such as elocution, singing, story telling, dancing, etc.
(z) Holidays.

2. How would you answer the following challenges?

(a) 'We don't want any of this new-fangled nonsense. Sit them down at their desks and teach them. That's what they need.'
(b) 'The school has no business in what a child does out of school.'
(c) 'I don't know what we pay fees for. All you do with our children is let them play about. They could do that at home a lot more cheaply.'

3. Discuss practical ways in which the environment of the classroom can be made to teach valuable lessons indirectly.

PUTTING THEORY INTO PRACTICE

1. Make a plan of what methods you would like to introduce in your first year as a teacher and discuss it with your fellow students to see if they think it is practicable.

2. What adaptations would the Dalton Plan require if you were to use it in your Demonstration School?

3. Do you think education has suffered in your country by imitating methods developed in Europe and America?

Discuss this with some of your friends giving specific examples to illustrate your answer.

For Further Reading

J. M. A. ARMSTRONG.	*Projects and their Place in Education.*	Pitman.
	Activity Methods for Children under Eight.	Evans.
M. ANDERSON.	*Communication Media and the School.*	Evans.
LUMSDAINE and GLASER.	*Teaching Machines and Programmed Learning, A Source Book.*	N.E.A.

15. TEACHING SKILLS

Section A

GETTING YOUR ORAL TEACHING ACROSS

As a teacher you will have many occasions when you need to read aloud to the class. You should therefore develop early the skill to read aloud fluently and well, either prose or poetry. The introductory reading of a new poem can make all the difference to its appreciation by the children.

In your teaching, you must always express yourself clearly. This may sound obvious, but it is surprising how many teachers fail in this. Sometimes it is because they use language and ideas that are beyond the reach of their children. This is inexcusable. It is not clever to be confusing; it is simply foolish. You should always think carefully about what you are going to say and get into the habit of speaking within the children's vocabulary range.

Sometimes teachers are not clear because they speak too fast or do not enunciate their speech carefully. It is good if you are a naturally fast speaker to practise speaking slowly, not only in the classroom but with your friends too. Your speech will not be clear unless you open your lips when you speak and sound your consonants.

A good deal of your speech as a teacher is made up of giving instructions to your pupils about what you want them to do. An instruction to do something should consist of a clear but brief explanation of what is required, followed by an executive word permitting the children to begin. Teachers who let the children begin before all have clearly understood, reap their own troublesome reward.

Clarity of explanation is achieved in two ways. First, the ideas must be expressed in the simplest way possible and reduced to the briefest terms. Secondly, emphasis to the important points must be given by the voice. A flat monotonous voice denies explanations of much of their clarity and almost all their interest.

Some teachers think that *teaching* and *talking* are synonymous, forgetting that silence or a gesture can be more telling than many words. They achieve a beautiful flow of excellent language but end with a class which has been lulled by the monotonous fluency into complete inattention.

QUESTIONING

Questioning is an important means of teaching. Unfortunately it is often badly used. The philosopher Socrates had it worked out to a fine art and used it as a ladder up which he carried his pupils towards fuller knowledge and deeper understanding.

Questioning can serve two purposes. Firstly, it can be used to test previous knowledge, in which case direct factual questions are asked, making much use of the four interrogatives, who, what, where and when. The answers to such questions reveal the factual knowledge of the children.

Secondly, questions may be asked to stimulate thought. Questions of this kind must be more carefully considered than the former because they deal with more weighty matters like cause and effect and make use of the interrogatives how and why. Such questioning is aimed at making the children reason and explain such things as cause, purpose and effect. Questioning of this kind is made more effective if it is couched in provocative terms instead of straightforward interrogation. In this way it stimulates thought more quickly and more forcibly and often makes a good starting off point for a lesson. Socrates was the master of this type of question.

Inexperienced teachers frequently make bad use of questioning and fall into habits which tend to persist unless their attention is drawn to them. Here are the most common weaknesses in questioning:

1. *Badly Formed Questions*

(a) *Vague or very general questions*

To this kind of question there may be no answer at all or there may be so many possible answers that the question is not worth asking. For example, a teacher in a geography lesson once asked, 'What do we find on the oceans?' What he wanted was the word *waves*, but what he got was a multitude of answers like ships, seaweed, islands and so on, all of which he rejected. Such a question is useless and hinders rather than helps learning.

(b) *Rhetorical questions*

These are statements with an interrogative phrase like 'Isn't it?' or 'Don't you think so?' attached to the end. These are not questions which want an answer; they only seek approval. They serve no purpose because they demand neither knowledge nor thought from the pupils.

(c) *Post-Script questions*

These occur in cases when a teacher has been happily teaching without any questions and suddenly realizes he ought to be asking some and so tags a question on to the end of his lecture, perhaps like this. 'Addis Ababa is the capital of Ethiopia. What is the capital of Ethiopia?' Like rhetorical questions, these require no thought. Their only test is of whether or not the children have been listening.

(d) *'Fill-in-the-Blank' questions*

In their written form, these provide an acceptable kind of test of knowledge because they test learning. But in their oral form they are usually a cover for the impatient or lazy teacher who will not take the trouble to put his thoughts into proper question form. So out come questions like 'When he looked at his hands he found they were... what?' In any form, questions should be such that only the correct answer fits properly.

2. *Repeated Questions*

Questions repeated in different ways may confuse the children rather than clarify your questions for them; and children who know that you always ask a question twice will get into the habit of attending only the second time. Do not think that because the children do not answer immediately, it means they have not heard the question. If it is a thought-provoking one they will need time to think. A little urging may be all they need.

3. *Multiple Questions*

Good questions are always simply expressed. If you do not think out your questions beforehand, they tend to grow as you see the problem from different aspects or have to guard the children against getting the wrong idea. This is the kind of question that results. 'Which of the sons of Jesse did Samuel anoint to be king and how did he choose him? Was his choice dictated by reason or other means and, if so, how was it done?'

4. *Unlinked Questions*

When questioning is used as a method of teaching, the questions must follow a sequence which makes the answer to one the starting point to the next and so on. The questions are then like signposts along the road leading the pupils along a definite route to a definite destination.

Unlinked questions are the result usually of inexperience. They form an illogical assortment consisting of easy and difficult questions which lead nowhere in particular.

5. *Limited Questioning*

Some teachers regard questioning as an airman regards his parachute—for emergency only. They look upon questioning as a help only for times of difficulty like when they run dry of information and ask 'Has anyone any questions?' They fail to see questioning is a technique of teaching and so their questions are few and far between.

A few teachers do not limit the number of questions they ask, but the number of pupils they ask. Perhaps they keep all their questions for the children at the front of the class or only for those who put up their hands to answer. You need to spread your questions well and see that they make an attractive challenge to the children and give a sense of achievement when they are well answered.

Teachers are not the only ones who should ask questions in the classroom. Children should too. It is natural for children to want to know and their curiosity sometimes makes them seem like living question marks. In a class where the children are free they will ask many different kinds of questions. Some will not be serious and may be designed to test the teacher's knowledge! Others will be genuine. From these, you can learn a great deal. You can see which pupils are eager to learn and which are lazy and ask questions simply to save themselves the trouble of thinking or finding out the answers for themselves. You will see, by the questions of some, a lack of understanding of what you have taught and so know that you will have to revise the lesson. You will see the different interests and ability of different children by their questions and know better how to help them as individuals. By allowing questions you will open up to the children a rich and natural channel for learning and also help them to gain confidence in self-expression.

Dealing with Answers

The most important matter in relation to questioning in the classroom is dealing with the answers. Here are a few practical suggestions:

1. When an answer is given by a child, indicate whether it is right or wrong. Commend those that are right and show appreciation for those that are partly right. Try to see the thought behind the answer given so that you can make use of any part which is right.
2. Do not answer your own questions. Wait for the children's answers and let them speak for themselves. Do not make the habit of repeating the answers given by the children or amplifying them. The only comment you need make apart from acknowledgement, is to correct a point that is wrong.
3. Make sure that the answers are heard by the whole class. It helps if you place yourself as far as possible from those of whom you ask the questions so that if you hear their answers you can be sure of everyone having heard.

SETTING, SUPERVISING AND MARKING NOTEBOOK WORK

Notebook work can be used in many situations and may take varied forms so that interest is always maintained. But fundamentally there are only two types, *mechanical* and *creative*. In mechanical written work, memory is tested and skills are exercised through practice. In creative written work, the aim is to stimulate thinking and encourage self-expression.

Written work is valuable because it is done individually and gives you a good idea of how your pupils are getting on. You can judge their individual abilities and difficulties from the work they hand in to you in the form of exercises and you can ensure that they have some record of what they have learned if you make them write, or draw in picture form, summaries of what they learn.

So far as the children are concerned, work of this kind is helpful because everyone does it, the slow worker and the fast, the shy and the assured and they can each work at their own speed. In practical terms too, the act of writing what they learn is helpful to learning and, in the absence of any textbook, may be their only record for revision.

The most important thing for you to do when giving written work is to try to prevent the children from making errors because bad work is no use to anyone. It discourages the pupil and turns the teacher's hair grey. The following points should help you to prepare your pupils to turn out good work:

1. Discuss with the children the work to be done so that each child knows exactly what is expected of him.

2. Go over any special difficulties that there may be in the work to be done so that mistakes can be avoided.

3. Emphasize the points that are important in the exercise so that the children will pay special attention to them.

4. Provide an example on the blackboard of the kind of work you want the children to do. Take pains to see that your example is good because it will be duplicated in lesser degrees of perfection by thirty or forty little individuals.

5. Stimulate the interest of the children in the work to be done and ensure their full concentration and maximum effort by preparing them well. For example if it is a picture the children are to draw, see that they have interest and want to draw it, or if it is an essay with young children, let them talk about the kinds of things they will write.

All notebook work in the primary school must be marked. Unless this is done conscientiously, the children's notebooks will become useless because they will be filled with unreliable information and low-standard work. Moreover, if the children think you are not interested in their work, they themselves will lose interest and their work will become careless and untidy. Such notebook work is worthless.

All marking should be done as soon after the work is done as possible. In certain subjects like arithmetic, art and such like, it is good to go round while the children are at work and mark their work or comment on it. In this way you can see where the children's weaknesses lie and take action accordingly. Whatever happens, do not allow your marking to accumulate until it becomes an impossible burden.

Use a definite system when marking written work so that children know what you mean. Simple errors in grammar, spelling and arithmethic are easily dealt with by using a system of symbols. Correction of thoughts expressed or processes followed require a written comment written in the margin or at the end of the exercise. This also applies to summing up the work done. Such a comment should be helpful to the pupil, encouraging him when appropriate or pointing out the weakness if this is the case.

Generally speaking, you should not correct the pupil's work but simply mark where it is wrong leaving him to find out and write the corrections for himself. But with very young children or those who are not very bright, it is helpful to write in the corrections for them or go over the errors with them personally.

Whether you mark every mistake or not will depend on your discretion and the purpose of the exercise. With bright pupils it is worth pointing out every mistake. But with the not so bright this method might lead to discouragement and the turning of their attention from the main purpose of the written work. Similarly your comments will vary in accordance with the performance of each individual so that a poor pupil who has tried hard will receive greater commendation than a good pupil who has obviously taken little trouble.

It is useful to go over notebook work with pupils after it has been marked, drawing attention to common weaknesses and showing examples of commendable work. Children benefit from writing out corrections after their work is handed back because in this way their attention is concentrated on the correct forms.

Marking and the giving of marks or grades should never be arbitrary. You should always work to a scheme on which you base your assessment. Points like neatness, setting down, methods used, accuracy, content, originality and such things must be considered if they are relevant to the kind of exercise given.

MAKING PROVISION FOR BRIGHT AND DULL CHILDREN

Bright and dull are descriptive terms describing the degree of intelligence found in a child and teachers usually have a fairly good idea of those in their class who are bright and those who are dull. They are characterized by the qualities listed on page 70.

In an average class of forty children there will usually be three or four pupils who are bright and the same number who are dull. Each group requires different treatment in teaching and we have already seen in Chapter 14 how this can be done by grouping or providing individual assignments.

As a general rule, bright children are capable of doing more work, more difficult work, and doing it faster than the average child. On the other hand, dull children find work suitable for average children of their age difficult and consequently are slower at it.

As a teacher, you must recognize these differences and make provision for them. Bright children whose mental powers are not fully utilized may become difficult, or at least give you plenty to think about. Quantity of work is not enough of itself; it must be combined with work which stretches and tests their minds.

Dull children are mentally younger than the rest of the class and really capable only of what younger children can do. They cannot cover the syllabus in the same detail as the others and it is sufficient if they cover the elements. They understand concepts better if these are expressed in concrete or visual forms and this is an important point in respect to the type of teaching that benefits them best.

It is an unfortunate fact that mentally dull children are often physically and emotionally handicapped as well. Their emotional difficulties are caused by the realization of their own inadequacy or the unsympathetic attitude of adults and brighter children. Too often also the dull child's home is unhelpful in meeting the child's need and the child finds himself in conflict between home and school.

DIAGNOSING AND TREATING BACKWARDNESS

Backwardness is not the same as dullness. It is possible for a bright child to be backward. Backwardness is a relative term referring to standand of attainment. Average children of a certain age can be expected to do work of a certain difficulty but if a child is a year or more behind the average of his age in attainment, he is described as backward. This backwardness may be *general* and apply to all school subjects or it may be *specific*, involving only a single subject.

General backwardness is nearly always caused by dullness but specific backwardness may result from a variety of causes of which the following are the chief:

1. Bad teaching—inefficient, frequent changes of staff, etc.
2. Absence—long absence from sickness or frequent absences from truancy or being kept at home by parents. This factor is most

damaging when it coincides with the teaching of key processes in number and language skills.

3. Emotional stress—unhappy home, cruel parents or guardian, or people at home who demand more from the child than he is capable of.

4. Ill health—defective hearing or vision, malnutrition and sickness etc.

Specific backwardness and some cases of general backwardness can be rectified if they are correctly diagnosed and given the right remedial treatment. Diagnosis consists of finding the weakness and its original cause; remedial treatment involves finding the best cure for this. For example, if the diagnosis makes it clear that a child's backwardness in arithmetic is due to a basic weakness in multiplication tables or number combinations because of much absence, then the correct remedial treatment will be first, a concentration on the tables and number combinations so that gaps in understanding are filled and then, drill in the skills involved so that improvement will result from practice. The treatment however will not be complete until something has been done to lessen the likelihood of further absences.

TESTING LEARNING

The need for testing is accepted by all teachers but the value of examinations as a means of doing it is still one of the most hotly debated subjects in education. There are two extreme and divergent views; those who would abandon all exams and those who would welcome an extension of the examination system.

Those who are against exams give as their reasons the waste of time they cause and the fear and control they exercise over pupils and teachers, so much so that pupils often do not do themselves justice and teachers sometimes cease to be educators. They say that teachers are diverted from the educational aims of teaching and concentrate only on the task of making their pupils do well in exams. Further accusations are levelled at the examination system when they say it is largely ineffective because it measures only knowledge acquired and not the other and more important fruits of education. Moreover, the system of marking is so arbitrary that they feel the whole system is unjust.

Those who favour exams argue differently. They claim that examinations are a form of educational stocktaking and the only form which does not rely on the vague opinions and prejudices of the teacher gathered in the course of his teaching. They say exams are the fairest way of deciding on the various types of selection required in the process of education and that, moreover, they are necessary for maintaining high standards. Without exams, pupils would not work hard or those who did work hard, would have no tangible proof of their progress.

Like all debates there is truth on both sides and a good deal of error and wrong assumptions. Perhaps the most useful point that emerges is that there is much wrong with the examination system as it is and people's attitude to it, and that it is greatly in need of modification.

Although formal examinations will have little place in the primary school, it is important that the teacher should get an objective idea of his children's progress. To do this, his testing must measure accurately. This accuracy can only be achieved if the form of the testing is such that it covers the whole field of teaching, provides scope for the full ability range of the class and makes marking foolproof.

The objective short answer test is the only kind of examination that fits these requirements. This kind of exam is still regarded by quite a number of teachers as new although it has been used for more than fifty years. In Africa the method is now being used even by important examining bodies like the West African Examinations Council.

The test usually consists of a very large number of questions, probably more than 100, all of which the candidate has to answer in a limited time. The large number of questions allows the examiner to cover a very wide field and avoid the dangers and unfairness of questions which merely sample the candidate's knowledge.

Fairness in marking can be ensured in several ways such as by asking the pupil to underline the correct answer from a number of suggested answers, or mark statements true or false, or write one word answers. Even when the pupil is required to write a word or two there is much less latitude for errors or unfairness in marking than with the traditional essay type of examination.

The principles that underlie the objective short answers test are as follows:

1. Many little questions are a better test of knowledge than a few big questions.

2. Many questions covering a range of increasing difficulty reflect the variations in ability of children better than a few assorted questions haphazardly arranged.

3. Much time spent in preparing the questions and their answers is amply rewarded by speed, accuracy and fairness in marking.

4. Children respond to this type of examination better and more in accordance with their true ability than to the essay type of exam.

In your career as a teacher you will have to prepare many tests and exams. If you do not look ahead, you will find the headmaster giving you a date for report cards to be filled in and handed to him for signing before you have given a thought to exams. Questions written down as your teaching proceeds and stored away until exam time, will give you a fund of questions from which the best can be selected. This is a much better plan than having to rack your brains the night before the exam to think up questions.

When the children have finished your exam there is always the task of marking. In the short answer objective test the marking is simple because the answers are either right or wrong. The time spent in preparing the exam now pays its reward. But when marking children's essays, their notebook work or more formal examination, you should mark according to a prepared mark scheme. For example, if it is an arithmetic exam, you must allocate how many marks you think each question is worth and how the marks in each question are made up. Full marks will be given for a wholly correct answer, but you will not deduct *all* the marks just because an answer is wrong. You will give something for the part of the sum that is right.

It is good to arrange any work offered by your class in order of merit. By comparing papers at the top, in the middle and at the bottom you will see whether your marking and placings have been justified.

When you are finally satisfied that the exam or exercise has been fairly and satisfactorily marked, give out the papers to the pupils and go over the questions to show them what was wanted. Do not get involved with individual pupils as to why they got less than so and so but do try to make them learn from their mistakes. It is one of the methods by which they can learn.

Section B

GETTING YOUR TEACHING ACROSS

1. To improve your reading for teaching, practise reading aloud to yourself or your friends, or recording yourself on a tape recorder. Before a lesson for which reading aloud will be necessary, practise the passage thoroughly the night before.

2. Suggest measures you can take to ensure that your vocabulary and ideas expressed in teaching will be within the understanding of your pupils.

3. Practise giving verbal instructions to your fellow students on such things as how to mend a puncture or light a fire or cook a certain dish, etc. Let them criticize you with regard to:

(a) The clarity of your explanation as regards content, ideas and vocabulary.
(b) The effectiveness of your explanation as regards orderliness, use of and quality of your voice.

4. Improve your enunciation by speaking in a whisper to a friend at the other end of the classroom.

5. Let a friend test your teaching ability by assessing a lesson according to the points noted below in fig 68. These are used by the tutors of a teacher training college for grading lessons by students during practice teaching: see page 288.

QUESTIONING

1. Watch a teacher teaching each of the kinds of lesson included in the chapter on lesson patterns. In each lesson pay attention to the following points:

(a) The number of questions the teacher asks and the proportion of them which are aimed at getting factual information from the pupils and the proportion aimed at making them think or reason.
(b) Examples of bad questioning:
  Badly formed questions of the various kinds.
  Repeated questions.
  Multiple questions.
  Unlinked questions.
  Limited questioning. Note here if he limits his questions to one part of the class.
(c) Examples of good questioning—the opposite of bad questioning.
(d) How he deals with the children's answers. Note the points to watch on pages 279 and 280.

TEACHING PRACTICE LESSON REPORT

Name of Student .... Date ....
Name of School .... Class ....

1. *The Lesson* (a) Suitability of material (b) Accuracy of facts (c) Amount taught (d) Lesson notes	
2. *Teaching* (a) Voice (b) English (c) Manner and bearing with children (d) Effectiveness of methods used and skill in using them (e) Teaching aids (f) Blackboard work (g) Class organization (h) Discipline	
3. *Class Response* (a) Oral work of children (b) Children's written or practical work (c) Interest shown by children (d) Evidence of learning	
4. *Assessment* (a) General Comments (b) Grading of lesson	Tutor's Signature ....

Fig 68

2. What subjects lend themselves best to questioning as a method of teaching?

3. Discuss what can be done about a class that does not answer freely. Also discuss how you would deal with any individual who is noticeable because he rarely volunteers to answer questions in class.

4. What importance has the wording of a question on its effectiveness? Give examples of well worded and badly worded questions and explain how the good teacher can ensure that his questions are well worded.

5. Prepare a thought-provoking or stimulating question to open each of the following lessons: fractions or decimals, local government, another country, seed dispersal, the national anthem, writing an essay about travelling, painting a picture for a Health poster, a reading lesson and a spelling lesson.

6. Discuss what you should do with the following kinds of children's questions.

(a) Those that are of interest only to a few in the class.
(b) Those that refer to work shortly to be covered in teaching.
(c) Those to which you do not know the answer.
(d) Those you suspect are asked to test you.
(e) Those that are impertinent.

7. Discuss the value of the following for stimulating good questioning and learning:

(a) *Question boxes*—boxes into which children may 'post' their questions and have them answered by the teacher during one lesson per week.
(b) *Brains trusts*—groups of children chosen to answer questions submitted by other members of the class.
(c) *Quizzes*—general knowledge competitions between teams from the class. These competitions can be on subjects other than general knowledge.

8. Study the following pupil-teacher dialogue as an example of the kind of teaching that can be carried out by linking questions to form a ladder of thought progression. The purpose of this series was to introduce a lesson on characteristics of plants which protect themselves against drought.

Q. God has made plants so that each can survive wherever it grows. Can you tell me any strange places where you have seen plants growing?
A. In cracks in rocks . . . on the roofs of houses . . . in rivers . . . on mountains.

Q. What difficulties do plants face which grow on rocks or house roofs?
A. They don't have much soil. . . . They don't get any shade from the sun.

Q. Apart from soil and sunshine, what do plants need for growing?
A. Air and water.

Q. Tell me the name of some plants that can grow with very little water or survive green during the dry season.
A. Thorn bushes . . . cactus . . . lemon trees . . . mangoes.

SETTING, SUPERVISING AND MARKING NOTEBOOK WORK

1. The following list shows the main kinds of notebook work that are used in teaching. Classify each as to whether it is mechanical or creative and discuss actual examples of each kind of written activity:

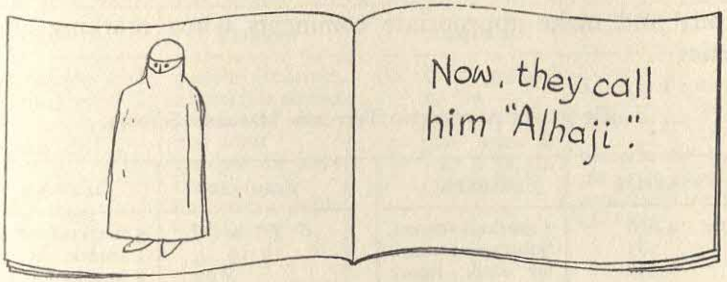
(a) Routine exercises in arithmetic or English language to get further practice.

(b) Tackling problems in arithmetic.
(c) Copying notes, maps, diagrams, etc., from the blackboard.
(d) Dictation.
(e) Writing essays.
(f) Recording notes composed by the combined effort of the class about a visit or local study just made.
(g) Writing up notes of an individual piece of study or research.
(h) Recording statistics for weather, crop yields, market prices, etc.
(i) Preparation of workbooks. These are books prepared by the children themselves to conclude a project or major study. In them they draw pictures, maps, diagrams, mount photographs and so on to illustrate a simple factual text about what they have done.
(j) Making up notes from headings written on the blackboard by the teacher.
(k) Answering series of short questions given by the teacher. The questions posed in this kind of exercise are designed to provide, through the answers written by the children, a summary of what they have learned.
(l) Filling in blanks in sentences written on the blackboard. The completed sentences, like k above, provide the children with a written summary.
(m) Writing an original poem.
(n) Composing an original tune or song.
(o) Drawing a picture to illustrate a story just told or a map to summarize a lesson.
(p) Writing plays or scripts for recording.
(q) Writing about imaginary situations as though you were a witness to historical events, e.g. a letter to a friend, a newspaper report or a news bulletin about the 'fall of the walls of Jericho'.
(r) Answering questions based on a picture used in a lesson.
(s) Keeping a diary.
(t) Preparing individual pages for a class project book.

2. What preparation might you give a class in the following lessons so as to cut down the possibility of poor notebook work and a lot of unnecessary correction?

(a) A dictation lesson.
(b) Writing an essay about 'My Favourite Pastime'.
(c) Making a workbook after a series of lessons about a 'Pilgrimage to Mecca'. (See fig 69 for specimen page.)
(d) Setting down of fractions, decimals, bills, etc.
(e) A drawing lesson in which the children are to draw a picture entitled 'The mad bull'.
(f) Drawing a rainfall graph.

3. Discuss the best use of notebooks for each subject taught in the primary school assuming there are no children's textbooks.


Now, they call him "Alhaji".

With the help of the pupil the main points of the pilgrimage are summarized in the form of a short story. Each child is given a sentence from the story to illustrate, which he does in the way shown above. The pages are collected and bound into booklet form.

Fig 69. Making a workbook on 'A Pilgrimage to Mecca'

4. Suggest the system of symbols you would use for marking the following kinds of error in composition:

Spelling mistakes (one letter wrong, letter omitted, whole word wrong).
Omissions of a word.
Punctuation mistakes.
Grammatical errors.

5. Discuss how you would mark the following, and the kinds of comment that you would write on the pupil's paper:

Wrong facts.
Badly expressed facts.
A good effort by a poor pupil.
A piece of work by a good pupil that does not come up to his usual standard.

6. Study the test shown in fig 70. Note how each sum is set down and how the marks are allocated. Give the test to a group of children in the top class of the primary school and mark their papers in the way recommended. What help does marking of this kind give:

(a) to the pupil?
(b) to the teacher?

7. Why should children's arithmetic be marked immediately?

8. Why should the teacher show where the child has gone wrong and make appropriate comments when marking arithmetic?

Fig 70. AN ARITHMETIC TEST AND MARKING SCHEME

EXAMPLES	MARKING
1a 4,629 385 6,532 4,701 16,247	4 marks if correct. Subtract 1 mark for each figure wrong, e.g. 1,6*348* gets 2 marks
b 4,763 −2,904 1,859	4 marks if correct 1 mark for each correct figure in the answer
c 4,739 ×29 94,780 42,651 137,431	4 marks if correct 1½ marks for ·94780 1½ marks for ·42651 1 mark for addition
d 828 26)21,528 208 72 52 208 208	4 marks if correct Subtract 1 mark for any wrong figure in working or answer
2a gal. qts. pts. 12 2 1 23 3 0 1 1 6 0 1 42 3 1	5 marks if correct 1 mark for each correct figure in the answer
b st. lb. 27 9 −8 12 18 11	5 marks if correct 3 marks for 11 lb. 2 marks for 18 st.
c £ s. d. 13 15 5 ×23 316 14 7 17 12)115 260 9s. 7d. 39 9 300 316 45 20) 354 17 — 14	5 marks if correct 1 mark for 7d. 2 marks for 14s. 2 marks for £316
d £ s. d. 7 17 7 19)149 14 1 133 320 132 16 334 133 ×20 19 133 320 144 133 11 ×12 132	5 marks if correct 1 mark for £7 2 marks for 17s. 2 marks for 7d.
3a 2·4 ·06 1·0072 ·593 4·0602	5 marks if correct 2 marks for correct position of decimal point 3 marks for addition Subtract 1 for each error
b $12 = 2^2 \times 3$ $14 = 2 \times 7$ $16 = 2^4$ ∴ LCM $= 2_4 \times 3 \times 7$ $= 48 \times 7$ $= 336$	5 marks if correct 3 marks for getting LCM = $2^4 \times 3 \times 7$ 2 marks for multiplying it out

Fig 70—continued

EXAMPLES	MARKING	EXAMPLES	MARKING
3c 194·501 ÷ ·67 = 19,450·1 ÷ 67 $\begin{array}{r} 290{\cdot}3 \\ 67\overline{)19450{\cdot}1} \\ 134 \\ \hline 605 \\ 603 \\ \hline 201 \end{array}$	5 marks if correct 2 marks for correct position of decimal point 3 marks for division Subtract 1 mark for each error	6 Cost price of 12 ties = £3 5s. Cost price of 1 tie = 5s. 5d. Gain = 20% ∴ Selling price per tie $= \frac{120}{100} \times 65$d. = 78d. = 6s. 6d.	6 marks if correct 2 marks for $\frac{120}{100}$ 2 marks for cost per tie in pence 2 marks for correct answer
d $(2\frac{3}{4} + 4\frac{1}{6} - 3\frac{2}{3}) \div 1\frac{7}{8}$ $= 3\frac{9 + 2 - 8}{12} \div 1\frac{7}{8}$ $= 3\frac{3}{12} \div 1\frac{7}{8}$ $= 3\frac{1}{4} \div 1\frac{7}{8}$ $= \frac{13}{\cancel{4}} \times \frac{\cancel{8}^{2}}{15}$ $1\frac{11}{15}$	5 marks if correct 1 mark for $3\frac{3}{12}$ 1 mark for $3\frac{1}{4} - 1\frac{7}{8}$ 1 mark for $\frac{13}{4} \times \frac{8}{15}$ 1 mark for $\frac{26}{15}$ 1 mark for answer	7 S.I. on £100 for 1 year at $3\frac{1}{2}\% = \pounds 3\frac{1}{2}$ S.I. on £450 for 2 years at $3\frac{1}{2}\%$ equals: $\frac{\pounds 450}{100} \times 2 \times \frac{7}{2}$ $= \frac{\pounds 63}{2}$ = £31 10s.	6 marks if correct 4 marks for getting $\frac{\pounds 450}{100} \times 2 \times \frac{7}{2}$ 2 marks for working to correct answer
4 For 5 hrs. he gets 3s. 4d. For $7\frac{1}{2}$ hrs. he gets $40 \times \frac{7\frac{1}{2}}{5}$ d $= 40 \times \frac{15}{10}$ d. = 60d. = 5s.	6 marks if correct 3 marks for $40 \times \frac{7\frac{1}{2}}{5}$ 3 marks for working to correct answer	8 Width = 33 ins. Length = 12 yds. ∴ Area = $\frac{33}{12} \times 36$ sq. ft. = 99 sq. ft. Area = $= \frac{99}{9}$ sq. yds. = 11 sq. yds.	6 marks if correct 3 marks for area in square feet 3 marks for area in square yards Subtract 1 mark if units missing
5 Total of 3 ages: $\begin{array}{rr} \text{yrs.} & \text{mths.} \\ 12 & 11 \\ 11 & 1 \\ 8 & 9 \\ \hline 32 & 9 \\ \hline \end{array}$ ∴ Average age equals 32 yrs. 9 mths. ÷ 3 = 10 yrs. 11 mths.	6 marks if correct 3 marks for correct total 1 mark for knowing to divide by 3 2 marks for dividing correctly	9 Rent and taxes = 25% Travelling = 15% Food = 30% Total = 70% ∴ Remainder = 30% If 30% of wages = £60 Total $= \pounds 60 \times \frac{100}{30}$ = £200	6 marks if correct 1 mark for 70% 1 mark for 30% 2 marks for making the statement 30% of wages = £60 2 marks for working to the correct answer

Fig 70—continued

EXAMPLE	MARKING	EXAMPLE	MARKING
10 3½ yds. at 3s. 4d. per yd. 3 yds. cost 10s. ½ yd. costs 1s. 8d. 2¼ yds. at 4s. 8d. per yd. 2 yds. cost 9s. 4d. ¼ yd. costs 1s. 2d. 5½ yds. at 1s. 3d. per yd. 5 yds. cost 6s. 3d. ½ yd. costs 7½d.	This may be done by children as rough working at the side of their page Allow marks if they do	*10—continued* Bill: 3½ yds. at 3s. 4d. = 11s. 8d. 2¼ yds at 4s. 8d. = 10s. 6d. 5½ yds at 1s. 3d. = 6s. 10½d. £1 9s. 0½d.	8 marks if correct 2 marks for each statement and cost 2 marks for correct addition of total.

MAKING PROVISION FOR BRIGHT CHILDREN AND DULL

1. During teaching practice or a period of prolonged observation of one class try to determine the number of children you would reckon as bright and the number who are dull. Do they have the characteristics outlined on page 70? Are any of them problem children to the teacher?

2. A dull child may have physical, mental, emotional and home handicaps. How can you help to lessen these handicaps in the classroom through your class organization, teaching and relationships with the children?

3. Comment on the following assertions made about dull pupils:

(a) 'The thoughts in his head are muddled and so the words from his mouth are confused.'
(b) 'Maintaining the interest of the pupil is the key to teaching the dull.'
(c) 'Given proper teaching he is capable of reasonable results and of making a useful contribution to the community.'

4. Comment on the following assertions made about bright pupils:

(a) 'They are the most common source of trouble in the class.'
(b) 'The average pupils can get on with set work pretty well on their own. It is the dull and the bright children who need special attention.'
(c) 'The danger with bright pupils is not that they are too precocious but that their teachers are too ignorant and backward.'

5. Refer back to Chapter 3 if you have forgotten the root origins of brightness and dullness. What intelligence quotient range does each group cover if they each represent less than 10 per cent of the total population?

6. Draw up lesson notes for a practice lesson in arithmetic and one in which a new step is taught. Show how you propose to deal with the bright and the dull children in each lesson.

7. What features respectively does practical work for bright and dull children have?

DIAGNOSING AND TREATING BACKWARDNESS

1. Outline the remedial treatment you would give to children you had diagnosed as backward in the following:

(a) The addition and subtraction of money.
(b) Weights and measures.
(c) Reading.
(d) Written composition.

2. Are there any processes of learning that are more appropriate to the child who is generally backward as compared with the one who is backward in only one or two subjects?

3. Discuss the following assertions:

(a) 'A great deal of the backwardness in arithmetic is due to the wrong approach of teachers who reckon that if children cannot understand arithmetic at least they can learn the processes. Thus children are led into performing ever more difficult procedures without understanding them. Under such circumstances a breakdown somewhere is inevitable.'
(b) 'All remedial teaching has to contend with an emotional barrier built up as the result of constant failure. This is the task the teacher must tackle first.'

4. Study the following rules for remedial teaching:

(a) Arouse interest and desire to improve.
(b) Give practical work involving real experience before proceeding with any formal or written work.
(c) Proceed by small carefully graded steps so that confidence is gained.
(d) Use drill and constant practice to instil habits and automatic reactions where these are desirable.
(e) Keep individual records of progress.
(f) Have patience and show appreciation for effort as well as results.

5. Find out whether any research has been done in your country by the Institute of Education on diagnostic tests. If not, the book *Diagnostic and Attainment Testing* by E. J. Schonell and

F. E. Schonell published by Oliver and Boyd will give you many ideas. But its tests are not suitable for use in Africa as they stand.

TESTING LEARNING

1. Comment on each of the following arguments made about examinations:

(a) 'Added together, the time devoted to the setting, administration and marking of tests and examination by teachers, the revision for them and the sitting of them by pupils, amount to a terrible waste of time.'
(b) 'Examinations impoverish true education by forcing teachers to gear their teaching programme to the exam and thus relegating to minor importance all those subjects that are not examined.'
(c) 'Through the emotional attitude of fear that exams evoke, children cannot be relied on to do their best, thus making exams an unreliable index of performance.'
(d) 'The Essay type of answer is notoriously difficult to mark fairly and makes this type of examination an unjust judge of ability.'
(e) 'The most important products of true education are aims, values and character, none of which can be measured by any examination.'
(f) 'Exams are the only way a teacher can get an accurate idea of the success of his teaching and the progress of his pupils.'
(g) 'Exams, by their impersonal approach, take the prejudice out of pupil assessment as compared with a teacher's opinion.'
(h) 'Human beings are so made that unless they have some threat hanging over their head they will not give of their best work.'
(i) 'The certificates awarded for success in exams are the only tangible evidence upon which future employers can rely and so examinations must stay.'

2. What implications affecting principles of examining do you see in the following situations?

(a) Two children answer the same question but one interprets it as meaning something quite different from the other.
(b) Two children of equal intelligence get very widely differing marks in the same exam.
(c) Two examiners mark one child's paper and award very different marks.
(d) An exam consisting of five questions to be answered in one and a quarter hours by primary school children.
(e) An arithmetic exam with only mechanical sums in it and no problems.

3. Give a class of children an essay to write on the following subject 'One day I shall be famous'. Grade them all yourself but do not put any pencil marks on them. Choose out six essays that you think represent well the range of quality from best to worst.

Give these six essays to another teacher or student and ask him to put them in order of merit. Repeat this with other teachers noting any changes in the order of merit decided on by you. Finally hold a conference with those you asked to grade the essays asking each to say how he reached his order of merit.

What variations did you find in the grading of the essays by different teachers? What variations in method of assessment did the different teachers reveal? What does this experiment indicate about essays as an examination technique? How could you have obtained a smaller difference amongst the teachers in rating the essays?

4. In fig 71 are two lists. One consists of the kind of things that can be measured by tests; the other is of various kinds of test. Discuss the first list and suggest which types of test from the second list could be used for measuring the qualities in the first list.

Memory of factual knowledge
Understanding
Observation
Reasoning, comparison and judgement
Skills
Ability to describe

True—false tests
Filling-in-the-blanks
Underlining the correct answer
Answering with a drawing, map or diagram
Answering short questions of different kinds
Giving opposites
Answering questions about a map or picture
Working many short questions of the same kind
Writing a short essay

Fig 71. Choosing suitable tests

5. Make up a short test of each kind and compare the following:

(a) Interest of the pupils in each test.
(b) Ease of marking.
(c) Effectiveness of the test to distinguish the real ability of the pupils.

6. Discuss the means of testing learning other than by written examinations and the best methods for each stage in the primary school.

7. Discuss the relative merits of marking exams on a percentage scale or on a system of grades A, B, C, D, E.

8. What are the relative merits of marks and remarks on report cards for the following purposes?

(a) Letting a child know how he has done.
(b) Letting a parent know his child's progress.
(c) Letting an employer know the capabilities of his applicant.

For Further Reading

F. M. AUSTIN.	*The Art of Questioning in the Classroom.*	University of London Press.
CHESHIRE EDUCATION COMMITTEE.	*The Education of Dull Children at the Primary stage.*	University of London Press.
G. W. PARKYN.	*Children of High Intelligence.*	New Zealand Council for Educational Research.
F. J. SCHONELL.	*Backwardness in the Basic Subjects.*	Oliver and Boyd.
F. J. SCHONELL.	*Diagnostic and Attainment Testing.*	Oliver and Boyd.
P. B. BALLARD.	*The New Examiner.*	University of London Press.
K. A. HESSE.	*The Four Rules and Conversion of Money.*	Longmans.
K. A. HESSE.	*The Four Rules of Number.*	Longmans.
K. A. HESSE.	*The Four Rules of Measurement.*	Longmans.

Part 6

THE SCHOOL

16. THE HEADTEACHER AND THE SCHOOL

Section A

ON BEING A HEADTEACHER

THE material components of a school are the pupils, teachers, books, equipment and the buildings; and these must harmonize if learning is to be produced. The task of co-ordinating them is the responsibility of the headteacher and it requires a lot of skill if he is to do the job well.

A school is a community of living, active people. The classrooms, school buildings and grounds provide the physical environment for their work and life together. Organization is needed if they are to be held together as an efficient, happy unit. Successful organization requires three things:

1. Good leadership.
2. Purposeful activity.
3. Efficiency.

If the headteacher can achieve these things his school will run well and will have a good chance of achieving its educational purpose. But organization must never become an end in itself. It cannot produce learning any more than oil can make a bicycle move. Its purpose is to make things run smoothly and make the best use of the effort expended.

With the rapidly expanding programme of primary education, many teachers become heads soon after leaving college. It is important, therefore, for them to give much thought and effort to the qualities that make a good headteacher. The secret of a happy and successful staff is good team spirit.

A good Head must possess high qualities of leadership, because, like a general, he cannot win the battle by himself, but only by inspiring those with whom he serves. Leadership, like authority, does not come readily to the person who grabs for it. But it comes with knowledge and experience and an understanding of people and human relationships. There is no happier relationship between human partners than when one willingly accepts the leadership and authority of another, who, in turn, wholeheartedly seeks the best for both. The test of a Head's leadership is to be found in the quality of the personal relationships in the school and the extent to which he has forged the staff into a united team.

If the happy relationships within a school depend largely on the leadership of the Head, the technical efficiency depends largely on the effectiveness of his organization, which, in turn, is dependent on his ability to plan the school programme of activities, supervise its practice and analyse and assess its results.

Good supervision requires knowledge and experience and the ability to demonstrate practical processes when required. The Head must adequately supervise the work of his teachers, but he must avoid over-supervising. Good supervision is neither too strict nor too slack and varies according to the need for help and guidance.

Only by constantly studying the results of the teaching in his school (and this does not mean only the examination results) can the Head properly assess how nearly the school is providing a sound education. Assessment requires accurate information that cannot be gained by remaining remote and aloof. It needs a person who knows the staff, the pupils and the job intimately by being in touch with them all the time. On the Head's assessment will depend what changes are made in the organization and teaching in the school. Such changes should only be made when there is a clear need.

A Head has responsibilities beyond the confines of his school, for he is responsible not only to his employer but to the public and, in particular to the community which his school serves. By his activities, enthusiasm and tact he must forge links with the community which will make his school wanted. Only when there is this relationship can the school play one of its most important functions, namely, an extension of the community's traditional system of training the young for adulthood. From time to time therefore, every Head must step back and look at himself and his school and determine how closely he is achieving what he set out to do.

ENCOURAGING SCHOOL SPIRIT

If there is to be a good spirit in a school, or what is called good *tone*, there must be a corporate spirit amongst its members. The Head, teachers and pupils must talk of '*we*' because they feel they belong together. They must have the same kind of ties which hold a family or a team together.

Such a spirit is not easily built up, but once established, has great staying power. The Head must take the initiative, for, although he cannot produce it nor compel it, there are certain things only he can do to prepare an environment in which a good school spirit will flourish. The following are what he should seek to encourage:

1. *Mutual Respect*

Respect cannot be demanded. It can only be given. It grows as one person sees in another qualities he admires. In a family the children respect their parents and have affection for their brothers and sisters. They are proud of their family whether it is a famous one or not. They are quick to announce their relationship whenever one of the family should achieve success or fame in some field. They thus share some of the glory. Likewise, parents are fond of their children and are proud of any who do well.

This relationship of mutual respect is necessary between the staff and pupils in a school if there is to be a good school spirit. But it can only be given to those who earn it and can only thrive when the Head nurtures it.

2. *Shared Ideals*

Group feeling is most easily developed amongst people who hold the same views and have the same ideals. This is difficult in a school which draws its staff and pupils from different backgrounds, but it can be encouraged by a Head who wants it.

In all societies there is an accepted code of behaviour which is the basis of orderly relations amongst the people. Much of this code is upheld by the laws of the country as, for example, the fact that theft is regarded as a crime or driving on the wrong side of the road is a punishable offence. But it is not the law that makes the majority of people abide by the code. It is the inner acceptance of these standards as right and good.

In a school, the rules and accepted standards of behaviour can be enforced by the threat of punishment, just as law is enforced by courts. But it is only when the staff and pupils voluntarily accept these standards as good that group feeling and school spirit can grow. When it has developed, then any falling short is regarded by all with disapproval and there is a common sense of shame that someone has brought disgrace on the good name of the school.

It is the Head who sets these standards in a school. Only when he himself has a high regard for moral virtue, beauty, goodness and hard work can he expect his staff and pupils to do so too.

3. *Shared Activities*

So long as a school is rigidly divided into compartments a corporate spirit will never emerge. The Head needs to break down the barriers which separate classes so that there are occasions when the school is like a family, sometimes all together sharing a common task, or enjoying a social occasion, or perhaps in groups following their several interests. This can be done through morning assemblies, concerts, exhibitions, school matches and so forth in which the whole school participates and in the clubs and societies where children can share their real interests regardless of class or age.

Through such activities, experiences, responsibilities and successes are shared. These are what encourage group feeling. Even failures may prove helpful by facing the group with the common challenge of rectifying the failure. Pride in the group thus swells and becomes a significant force towards the ultimate goal of a strong school spirit.

MAKING THE BEST OF THE SCHOOL

It costs a great deal of money to build and equip a modern school. But if the fact of limited budgets is accepted as a feature likely to be with us for a long time, we will be able to turn our thinking away from the beggar outlook of waiting until something is provided and develop a more positive self-help attitude. Once there is a willingness to do it yourself, it is possible to make changes in existing schools that will make all the difference between the rough and tumbledown places so often found and the clean, attractive schools that they might be. Here is where the leadership qualities of the Head can play an active part.

First he must have an ideal towards which he aims, remembering that a well-organized, good-looking and well-kept school is not a luxury but a necessity because the school provides an environment for all who use it which affects positively their tastes, morale, happiness and behaviour.

The following are spheres in which improvements can often be made:

1. *The Grounds*

When building a new school, ideally the land should be spacious, well drained and flat, so that building is cheap and games fields, farms and gardens can easily be laid out. In practice, if the school is already built on rough ground, the best that can be done to provide satisfactory playgrounds and games pitches is to choose the most suitable land near by and clear it and level it before marking it out for particular games or other needs.

For games, short growing grasses should be encouraged and, where there is a slope to the land, the pitches should lie across the slope and not along it. The whole area occupied by the school and its grounds should be hedged with a suitable plant for keeping out unwanted animals. If this can be attractive as well as effective, so much the better.

Most important, however, whether the area is large or small, is to keep the grounds neat and tidy. Keep the grass well cut and the playground free from litter and rubbish. Flower beds provide a colourful and attractive contribution to the appearance of the grounds, but they need constant care. If you are not keen on such demanding maintenance, colour can be provided by planting flowering trees and shrubs. Some of the most beautiful ornamental gardens of the ancient world were in Africa.

2. *The Buildings*

There is nothing that can be done about the shape, size or orientation of a school once it has been built, but there is much that can be done about how its accommodation is used and its appearance is cared for. Too many teachers seem unconcerned about the leaky roofs and dirty crumbling walls. The least they can do is to report the repairs that are needed. But a little effort and ingenuity can change the drabness of the average school into the trim, business-like place it could be.

Here are four rules for making the best use of the school:

(a) *Keep the school clean!*

This means more than just sweeping the floors. It includes the windows, doors, walls, ceilings, cupboards, furniture and equipment like blackboards, pictures and other teaching aids. Keep the school clean inside and out!

(b) *Keep the school tidy!*

There should be a place for everything and everything should be in its place. Things put away at once quickly repay the momentary inconvenience by saving a great deal of time which so often has to be spent searching for lost or mislaid articles later. It is surprising how many classrooms lack the most obvious necessities such as a waste paper basket or somewhere to put the blackboard duster.

(c) *Beautify the school!*

Beauty may only be skin deep but it makes a deep impression on the one who looks upon it. When beauty and interest are united as they can be by the display of good pictures on the walls, or flowers on the table or a tank of fish or a small aviary in the classrooms, they can produce a powerful educative force. Likewise, colour schemes of paint and distemper, where the school funds can rise to these, can change an otherwise drab school into a bright, attractive place where it is a delight to be.

(d) *Look after what you have got!*

Wastage results from careless usage. It goes on in many schools despite the knowledge that funds are low. Wasteful practices can be stopped. Staff and pupils alike should develop the habit of looking after all school property with as much care as they do their own.

What has been said about the buildings also applies to those additional facilities such as latrines and washing-places which the school must provide. The proper care of these allows them to play their important function in the hygiene of the school. Failure to do so turns them into repulsive stinkhouses which bring only revulsion to all decent people.

3. *The Furniture*

Much of the furniture found in schools is unsuitable because it is uncomfortable and unadaptable. Desks and seats must be the right size for children and the seats should have backs to them to prevent the development of bad posture.

To be adaptable, desks must not be fixed to the floor and must be light enough to be easily carried when it is necessary to move them for group work. They should also be conveniently shaped for use in different ways. For example, a group of desks might be a post office counter in a practical arithmetic lesson or a puppet theatre in a handwork lesson or a display table for an exhibition.

Storage should be adequate, not only for the teacher and his equipment, but for the children and theirs. Much of the untidiness in schools is the result of inadequate storage space.

Section B

ON BEING A HEADTEACHER

1. Think back to Heads you have known and write down in one column those qualities they displayed which you think were good and in another column those which you think were bad. Discuss your conclusions with others who have done the same thing.

2. The following qualities are needed in a good Head but all are not equally important or needed to the same degree. Group them in what you think is their order of importance, i.e., those of greatest importance, those of less and those of least. Discuss the reasons for your grouping:

Firmness and ability to get good discipline.
Originality.
Initiative.
Goodness of character.
Love of and interest in teaching.
Orderliness of habits.
Ability to persuade others to get the best out of themselves.
Self-control.
High sense of duty.
Sound judgement and deep insight into character.
Great academic knowledge.
Breadth of vision for possible developments.
Good sense of perspective.
Skill as a teacher.

3. What training, experience and length of service do you think fit a teacher best for the post of Head in a single-stream full primary school? What proportion of the headteachers you know in such posts possess these requirements?

4. Discuss the work of a Head in the following capacities:

Teaching.
Leading.
Organizing.
Supervising.
Examining.
Demonstrating.
Disciplining.
Public relations.

5. In your community, how might a Head encourage interest in the school from the following people? Discuss the value of getting their interest and co-operation in the life of the school:

The Chief.
Councillors.
Leaders of religious sects.
Employers.
Craftsmen.
Farmers.
Educated parents.
Illiterate parents.

6. Discuss or debate the following statements or assertions:

(a) 'It is more important for a headmaster to be a good teacher than a good administrator.'
(b) 'The good old man, more than the efficient young man makes the better headmaster.'
(c) 'A headmaster should do no teaching but spend all his time and energy in making the school a better and more efficient place.'

ENCOURAGING SCHOOL SPIRIT

1. Enumerate the various ways in which the staff and pupils can be helped to develop team and family spirit in school. You should consider in your list the following groupings:

(a) Social relationships within the school.
(b) Combined activities.
(c) Ideals.
(d) Fame and success of members of the school.

2. Discuss the problems of the young probationary teacher in the matter of gaining the respect of staff and pupils in his first teaching appointment. What advice would you give him?

3. Compare the problems of the Head of a church or mission school as compared with those of the Head of a local education authority or government school in promoting common ideals.

4. Look again at the list of activities given under the heading Indirect Teaching on pages 273–274 and discuss their value in promoting a good spirit throughout the school.

5. Read the following passage carefully and answer the questions that follow:

> 'On entering the school I noticed with some surprise that, although the paint was not recent, yet it still looked well and had none of the chips, cracks, stains and patches of wear round the doors which are so usual in schools. The woodwork was well cared for and the windows clean.
>
> As I approached the headmaster's study, I was intercepted by an emerging class. I was impressed to notice that they carried books, walked softly and decorously, spoke in whispers and stopped and drew aside respectfully to allow me to pass, although there was plenty of room since none of them walked more than two abreast. I am accustomed to hearing barely subdued inquiries such as 'Who's he?' or 'What's he doing here?' accompanied by giggles and titters at the very idea of a stranger and I felt, suddenly, glad that this was missing. How had this been achieved, I wondered?
>
> The headmaster's first term must have been barely tolerable—for the whole school. The staff were startled to find that each lesson had to be prepared and submitted to scrutiny to make sure that the children had something, indeed quite a lot to do. Shock followed shock: all staff were on duty every day until the last child left; the school was constantly patrolled; noise, the anathema, was quenched again, again and then again; whistles were forbidden, prefects dismissed; time was rigid, minutes mattered. The inexorable grind of routine set in and the rising violence of adolescence was stilled. Tenacity and purpose pressed down continually and relentlessly on the weak, the foolish and the rebellious of staff and pupils alike. In detention squads that gradually diminished in size as the weeks went by, the punishable wearily wrote and wrote, oppressed by the hushed building and the living noises outside. In exact and silent ranks the whole school waited the quiet condemnation of general faults; waited, sometimes, twenty minutes and went away impressed by the panoply of unalterable law. Such special assemblies grew fewer and fewer until the notice of one boded something huge and thrilling for good as well as bad.
>
> During this initial period many parents came and many staff left, but the former were placated, some even impressed. The latter were those most easily spared. The rigour of the 'reformatory', as it was called, was only partly responsible for their shifting. But it was the new time table that finally dislodged them.
>
> But when after hesitant and uncertain starts, this time table began to operate consistently, both the pupils and staff slowly discovered not only a necessity, but a capacity for hard work which secretly astonished them. A sense of purpose, a feeling of achievement in progress and an exhilarating satisfaction in working well came much later when the resentment and suspicion had lost their power; but once the first measures had been taken results began to show. It was now possible to reconstruct over the scaffolding

of firm discipline, an ordered house in which manners and respect took the place of open offence and haphazard punishment. Continued application brought its own control and the thirst of adolescence for authority was slaked.'

From 'An Educational Visit' by A. J. Wilson.

(a) The reorganization of the school described in this account was very extreme and it is not suggested that it is a pattern that you would necessarily want to copy. But what evidence was there of bad school organization and bad school spirit before the new headmaster came?

(b) What changes did the headmaster make in the organization of this school when he took over?

(c) What evidence is there that discipline improved as the result of the measures taken by the new headmaster?

(d) What does the writer say which suggests he thinks the changes were fundamentally good for the children, the teachers and the school as a whole?

MAKING THE BEST OF THE SCHOOL

1. Discuss how you could prevent the sun's rays from shining through the windows of classrooms during the early part of the day and the afternoon in the following circumstances:

(a) If you could plan the design and orientation of a new school.

(b) You had to deal with an existing school which was troubled in this way.

In the same way discuss what would be helpful in protecting the windows from rain driven by the prevailing storm winds in your area in both the circumstances mentioned above.

2. Plan and design a new ideal primary school for your locality using the following steps. This could be a class or group project:

(a) Survey your locality for the best site for the school. Explain why you think it is the best.

(b) On a large sheet of squared paper, draw to scale a map of the site you have chosen showing clearly any rocky, eroded or steeply sloping areas which are not suitable for building on or using for farmland or playing fields. Indicate also where north is on your map and the direction of the prevailing winds.

(c) On another sheet of paper, make a plan and elevation drawing of the new school. It should incorporate the number of classrooms required for a full primary school in your country. It should not be smaller than the minimum standards shown in fig 72 for school and classroom design. Give consideration at the same time, to where and how you would provide storage for the following:

Children's exercise books.
Textbooks used in teaching.
School stationery, chalk, etc.
Visual aids.
Wireless and other valuable equipment.
Finished handwork.
Physical education equipment.
Tools for farming.
Handwork materials.
Duster's, brooms, etc.
Broken furniture.
Library books.

ACCOMMODATION	SIZE
Classroom	Floor area 600 sq. ft. (approx. 30′ × 20′)
"	Window area 150 sq. ft.
"	Blackboard area 60 sq. ft.
"	Wall display board area 60 sq. ft.
Head's office	Floor area 10 sq. ft.
Staffroom	Floor area 30 sq. ft.
Stores	Floor area 40 sq. ft.

N.B. These figures are based on a unit of forty children. Hence in a school of 160 pupils there would be four classrooms but not four staffrooms. The size of the staffroom would be 120 sq. ft. In such a small school there might be no Headmaster's office. But in a full primary school the staffroom and office would be proportionately larger.

Fig 72. Suggested minimum standards for school and classroom design

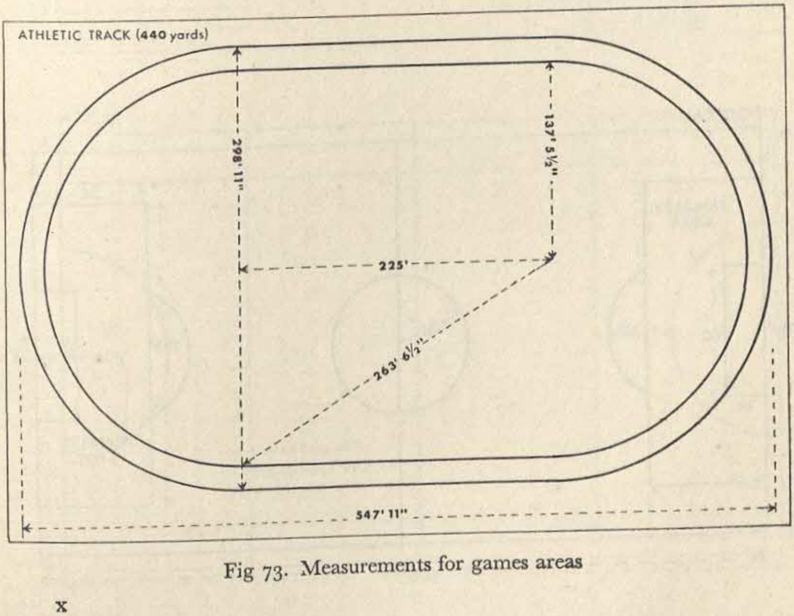
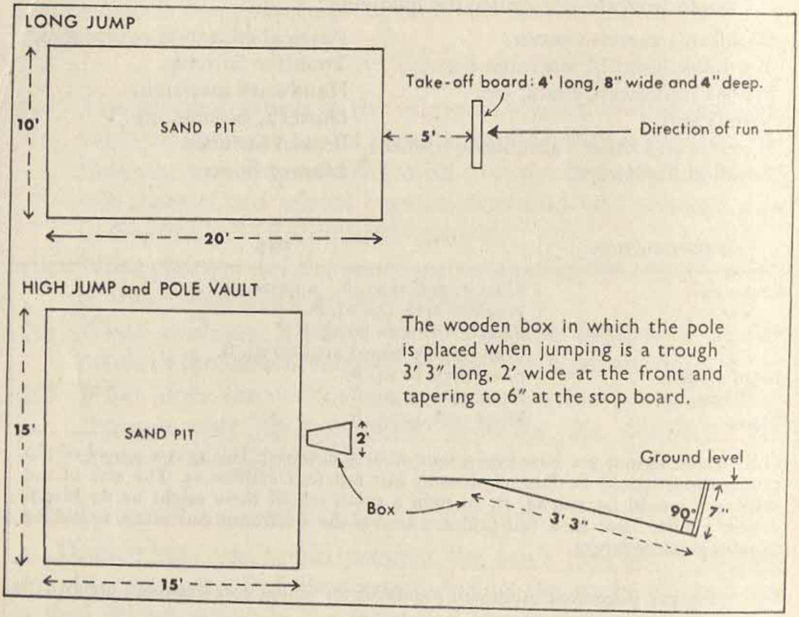
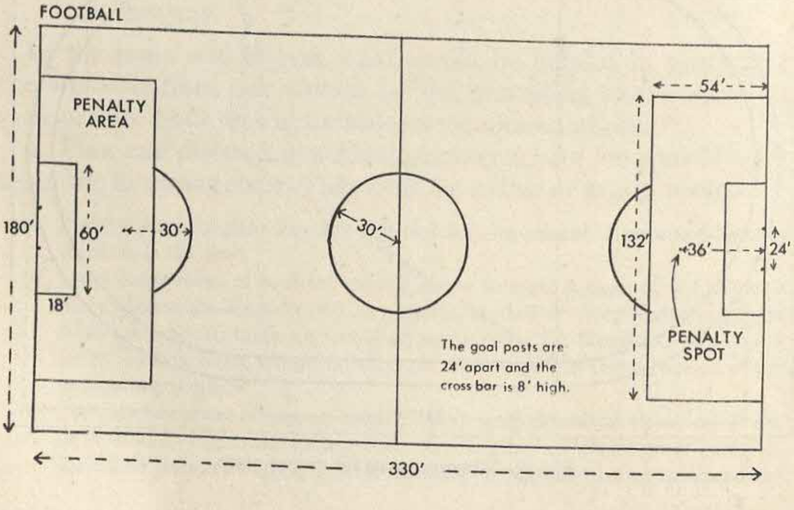


Fig 73. Measurements for games areas

Fig 73 continued

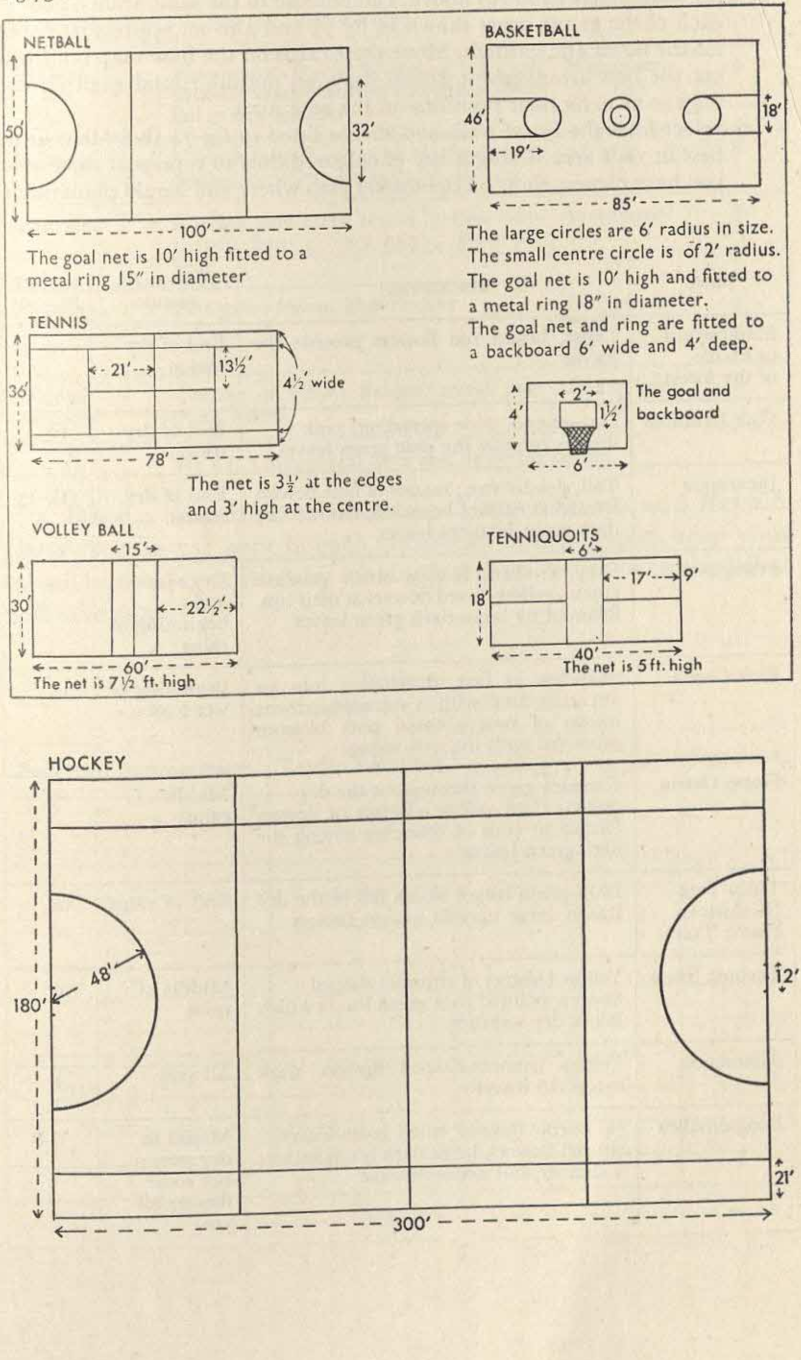


The wooden box in which the pole is placed when jumping is a trough 3′ 3″ long, 2′ wide at the front and tapering to 6″ at the stop board.



The goal posts are 24′ apart and the cross bar is 8′ high.

Fig 73 continued



The goal net is 10' high fitted to a metal ring 15" in diameter

The large circles are 6' radius in size.
The small centre circle is of 2' radius.
The goal net is 10' high and fitted to a metal ring 18" in diameter.
The goal net and ring are fitted to a backboard 6' wide and 4' deep.

The net is 3½' at the edges and 3' high at the centre.

The net is 7½ ft. high

The net is 5 ft. high

(d) Cut out from thin card the plan of the new school to the same scale as the map prepared in (b) above. Cut out also to the same scale a plan of each of the games areas shown in fig 73 and also an appropriate area for the farms and gardens. Move these cards on the base map until you get the best arrangement. Then draw an outline round each on the map so as to fix their positions on the base map.

(e) Select from the list of trees and shrubs listed in fig 74 those that grow best in your area. Using a key of coloured dots to represent those that you have chosen, show on the master plan where you would plant them.

NAME	DESCRIPTION	FLOWERING PERIOD	HEIGHT IN FEET
Flamboyant or Flame of the forest	Large, bright red flowers precede the leaves	End of dry season	12–15
Pink Bauhinia	Flat-topped, wide spreading; pink flowers precede the pale green leaves	End of dry season	10
Jacaranda	Tall, slender tree; masses of blue flowers formed at ends of branches, followed by dark green feathery leaves	End of dry season	12–15
Frangipani	Grey, swollen, leafless stems produce cream, yellow or red flowers at their tips, followed by large dark green leaves	Dry season and beginning of rains	10
Pink Cassia	Shapeless at first, developing into an attractive tree with a rounded crown; masses of sweet-scented pink blossom produced with the new foliage	Beginning of wet season	15
Horse Cassia	Remains green throughout the dry season; dark yellow clusters of flowers formed at ends of branches among the dark green leaves	Middle of rains	15
Tulip Tree (E. African Flame Tree)	Dark green leaves which fall in the dry season, large upright orange flowers	End of rains	12
Tecoma Stans	Yellow clusters of trumpet-shaped flowers, pointed pale green leaves which fall in dry weather	Middle of rains	10
Allamanda	Yellow trumpet-shaped flowers, dark evergreen leaves	All year	4
Bougainvillea	(a) purple flowers, small green leaves (b) red flowers, large dark green leaves; a climber and needs support	Masses in dry season but some flowers all year	6–8

Fig 74 continued

NAME	DESCRIPTION	FLOWERING PERIOD	HEIGHT IN FEET
Duranta	Blue-mauve flowers at end of branches produce orange berries; pale green leaves fall in dry weather	Wet season	10
Hibiscus	Various colours, red most common; some double varieties; green leaves all year	All year	8
Gamboge	Narrow pale green leaves, yellow bell-shaped flowers; very hardy, green all year	Wet season	8
Plumbago	Pale green leaves, blue flowers	All year, but prolific in dry season	5
Pride of Barbados	Orange or yellow flowers, small pale green leaves	End of rains	8

Fig 74. Ornamental trees and flowering shrubs

3. Discuss the extent to which an 'Improvements and Repairs Card' (see fig 75) kept in each classroom might help to keep your school in good condition by making possible the stitch in time that will save nine.

ROOM 3
IMPROVEMENTS AND REPAIR CARD

Suggested Improvements	Repairs Required	Date Reported	Date Done	Signature

Fig 75.

4. Make a list of the essential tools and materials for a school repair kit which might be kept for simple repairs such as:

Shaky desks and seats.
Loose hinges on desk lids, windows, shutters and doors.
Doors and drawers that stick in the wet season.
Faulty door locks.

Suggest how a headmaster might make satisfactory arrangements for small repairs to be done using such a repair kit without calling in outside skilled help. The storage for such a repair kit is shown in fig 76.

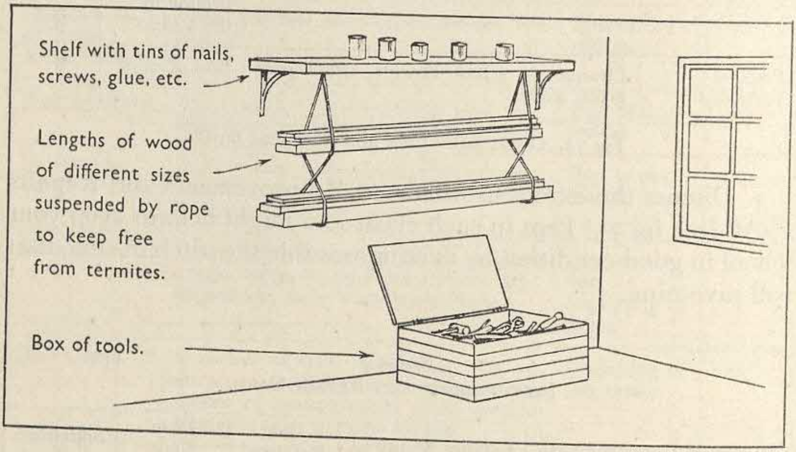

Shelf with tins of nails, screws, glue, etc.
Lengths of wood of different sizes suspended by rope to keep free from termites.
Box of tools.

Fig 76. The school repair kit

5. Experiment in your college classroom with ways of making it more interesting and attractive. Do so in ways that would be possible and appropriate in a primary school classroom.

What plan would you adopt for obtaining pictures and flowers, and what routine would you use for ensuring that they are changed regularly?

6. In fig 77 the walls of three different classrooms have been laid out in line showing the window and door arrangements. Each small square represents a two-foot square. Shade in pencil where you think are the most suitable positions for putting up wall-boards for picture display. Remember that the minimum wall-board area for each class is 60 sq. ft.

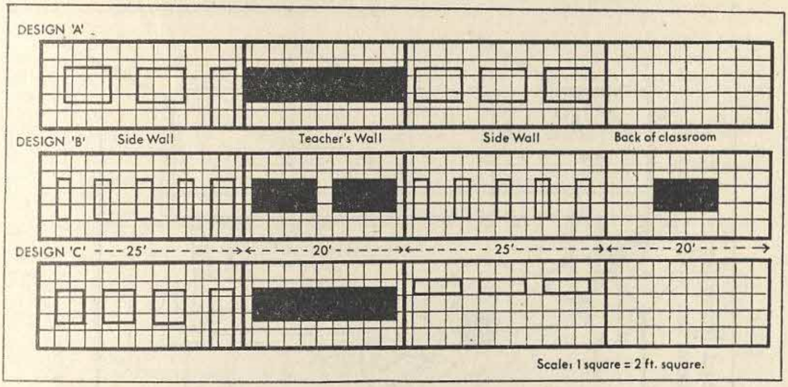


Fig 77. Wall space available in classrooms of different design

Which of the three classroom designs lends itself best for display purposes and which the worst? Explain your choice.

7. Study the methods of washing which have been provided in certain rural schools for use after physical education lessons and are illustrated in fig 78. Which of them do you like best?

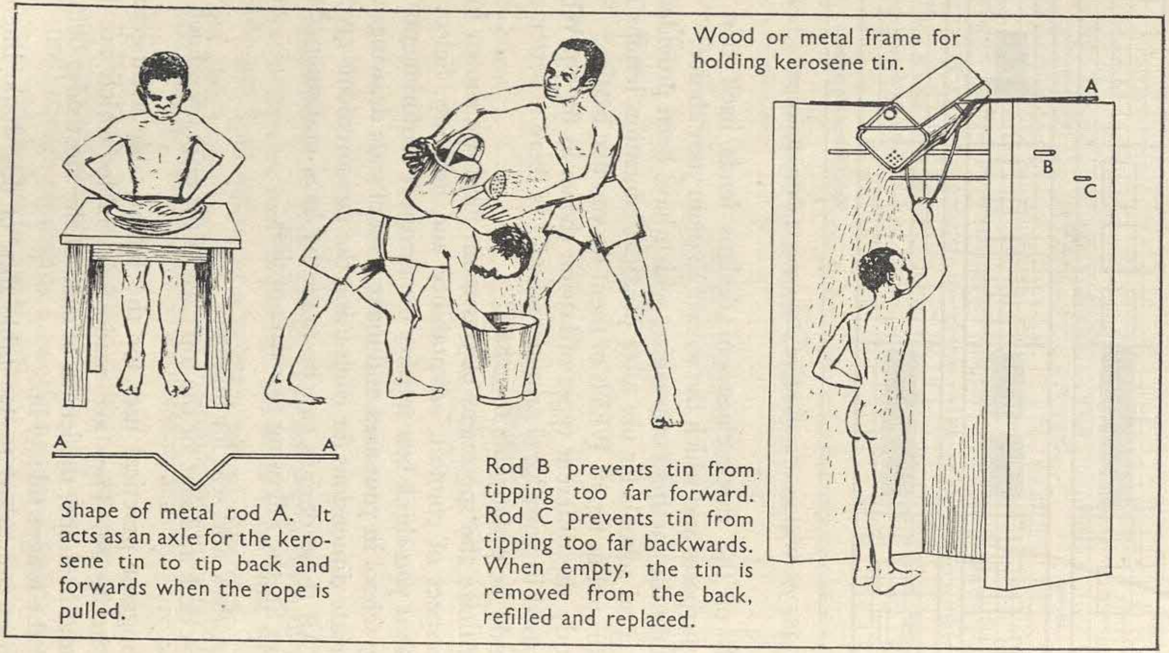
8. Study the different types of latrine shown in fig 79. Which kind is used in your local primary school? Is there a better type that would be practicable to install?

9. Criticize the specimens of classroom furniture shown in fig 80 in respect of comfort, adaptability and lightness. Select the design that you think best satisfies the furniture requirements of a primary school in your area and make a set of scale drawings with appropriate dimensions for each using the measurements given in fig 81. All these designs can be made by local craftsmen. Make drawings for the following two sizes of desk.

(a) A desk and seat for infants.
(b) A desk and seat for the top class of the primary school.

10. Suggest practical uses for the infant table arrangements shown in fig 82. They are made from tables which are half-hexagonal in shape, the length of each of the short sides being 18 in. and the longer side 36 in.

Cut out from card twelve table tops of this shape but on a reduced scale. See how many different arrangements you can make for group work and other teaching needs.



Wood or metal frame for holding kerosene tin.

Shape of metal rod A. It acts as an axle for the kerosene tin to tip back and forwards when the rope is pulled.

Rod B prevents tin from tipping too far forward. Rod C prevents tin from tipping too far backwards. When empty, the tin is removed from the back, refilled and replaced.

Fig 78. Methods of providing washing facilities in rural schools

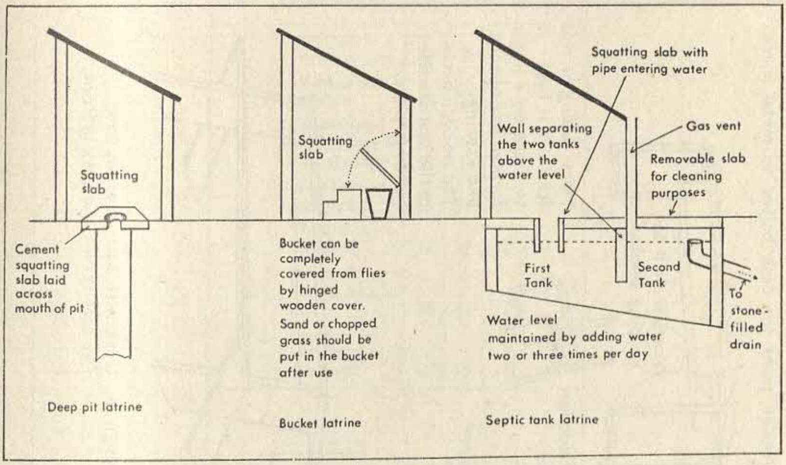

Squatting slab
Cement squatting slab laid across mouth of pit
Deep pit latrine
Squatting slab
Bucket can be completely covered from flies by hinged wooden cover.
Sand or chopped grass should be put in the bucket after use
Bucket latrine
Squatting slab with pipe entering water
Wall separating the two tanks above the water level
Gas vent
Removable slab for cleaning purposes
First Tank
Second Tank
To stone-filled drain
Water level maintained by adding water two or three times per day
Septic tank latrine

Fig 79. Types of rural school latrine

11. Through your college tutor, negotiate with the manager and Head of a neighbouring primary school for holding an 'Improvements and Development Project'. In this, you and your fellow students will co-operate with the staff and pupils of the school to make improvements and plan developments.

The project can be carried out in the following stages but, all told, it should not take more than three days.

Stage 1

Pay a preliminary visit to the school in which you will carry out the project and discuss the plan with the headteacher and staff. In the discussion you should find out what pupils and staff will be available to share in the work and the tools and equipment that can be used. This will enable you to decide on how big a task you can tackle.

While on this visit, draw a large-scale map of the school grounds and show on it the location and nature of the jobs to be undertaken, such as the making of new paths, digging new flower beds, planting trees or marking out games pitches.

In the same way, if time and personnel will allow, draw a large-scale plan of the school building and note on it the improvements planned such as the putting up of wallboards, the repair or renovation of blackboards or any tasks that will help to make the school better.

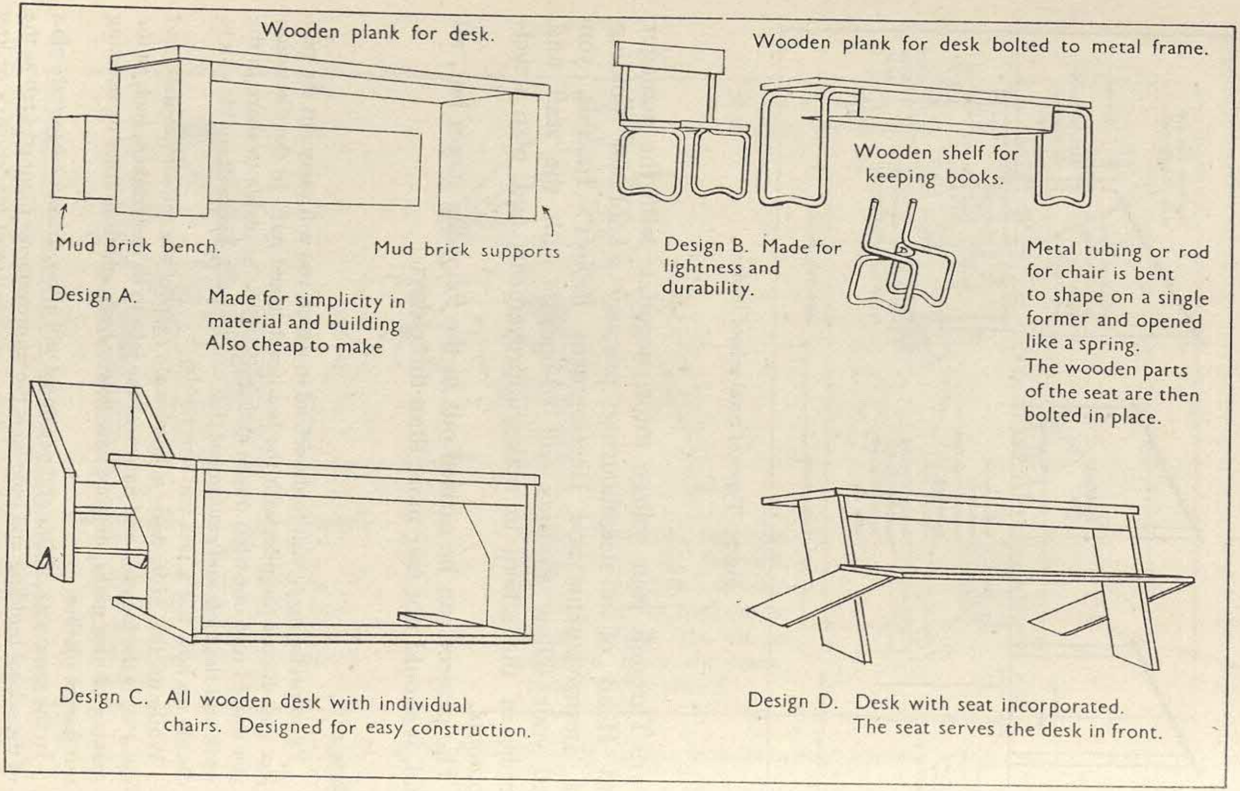

Wooden plank for desk.
Mud brick bench.
Mud brick supports
Design A.
Made for simplicity in material and building
Also cheap to make
Wooden plank for desk bolted to metal frame.
Wooden shelf for keeping books.
Design B. Made for lightness and durability.
Metal tubing or rod for chair is bent to shape on a single former and opened like a spring.
The wooden parts of the seat are then bolted in place.
Design C. All wooden desk with individual chairs. Designed for easy construction.
Design D. Desk with seat incorporated. The seat serves the desk in front.

Fig 80. School desk designs

Age of Children	6-9	9-12	12-15
A. Height of writing surface	22″	25″	28″
B. Width of desk per child	18″	20″	24″
C. Distance from front to back of writing surface	12″	15″	15″
D. Height of seat from floor	13″	14″	16″
E. Width of seat per child	12″	15″	18″
F. Distance from front to back of seat	10″	12″	15″
G. Height of the back rest above seat height	12″	13″	14″

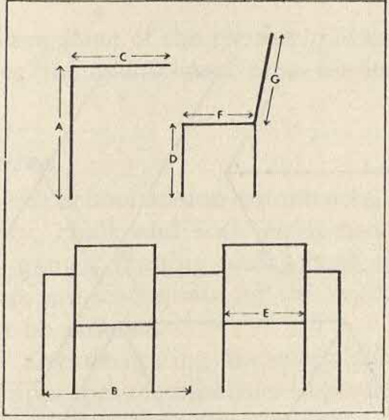


Fig 81. Standard dimensions for school furniture

Stage 2

In college, plan how all the tasks will be done, who will be leaders of the various groups and what equipment each group will need to take with it and what can be supplied by the school itself. Check that every student leader or member of a group knows what he is to do, how it can be done and what school staff and pupils he will be working with.

Stage 3

Go back to the school and carry out the project as planned.

Stage 4

After the project is finished, assess the value of the work to the school in which it was done and to your own class who co-operated in the task.

For Further Reading

A. V. HATFIELD. *School Buildings, Furniture and Playing Fields.* Longmans.
H. A. W. CHAPMAN. *Boarding Schools.* Longmans.

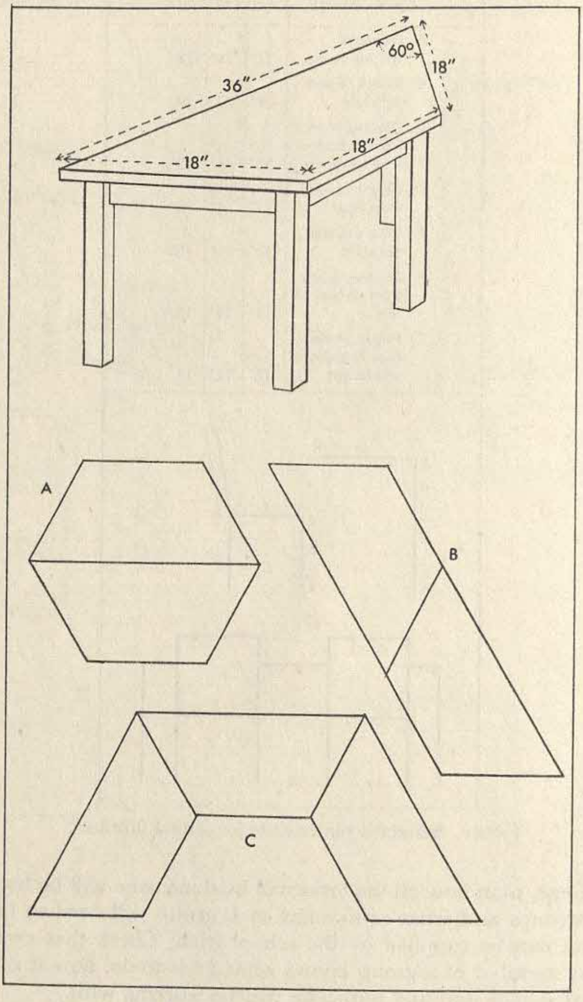


Fig 82. Infant table with suggested arrangements

17. PLANNING THE ORGANIZATION OF A SCHOOL

Section A

LOOKING AHEAD IN ROUTINE MATTERS

THE satisfactory running of a school cannot be left for each day to look after itself. Planning and forethought are necessary all the time.

The following are some of the routine matters that the head-teacher must give thought to and plan for in his capacity as administrator.

1. *Before a new session*

Long before the school session commences, supplies of text-books, stationery, chalk and such equipment as is necessary for handwork, games, farming and school cleaning must be checked. If these are inadequate for the needs of the new session, they must be ordered.

Repairs and any decorating necessary should likewise be reported to the appropriate authorities in good time so that they can be completed before the school reopens.

The date of opening must be well publicized so that the parents of new children will know. If registration and the collecting of fees is on an earlier day, this should likewise receive good publicity.

Near to the date of opening, the Head should hold a staff meeting to discuss the programme for the year, inform the teachers of their duties and allow new members of staff to get to know the rest of the staff well. Teachers should be issued with their syllabuses, registers and such other things as they will require for the first day.

A provisional time table for the whole school should be prepared, based on the Head's knowledge of the qualifications and interests of his staff. This will allow the school to begin work on the first day.

2. *The first day of term*

The necessary tidying up of the school and the issue of equipment should be planned so that it takes up a minimum amount of time and allows teachers to begin their teaching as soon as possible. Idle waiting by the children is bad for their morale and will adversely affect their future behaviour in the school.

Class teachers should prepare their registers and make up rotas for the routine duties of their classes. Likewise they should choose their class prefects on the first day. Some teachers, however, prefer to leave the choice of prefects for a little until the children have settled down. This is particularly important with new classes where the children do not know each other.

3. *The last day of term*

Apart from the general sweeping and tidying up that has to be done, the Head should see that all equipment is checked and stored away in a safe place. The Head will check this equipment so that he will know what supplies to order. This task is greatly simplified if an inventory has been kept in the stock book.

Teachers should check that their registers, syllabuses and records of work are complete before handing them over to the headteacher. Examination results and reports will probably have already been given to him. Teachers should report any repairs necessary in their classrooms.

Class libraries and the school library should be checked by those responsible for them.

4. *Special Occasions*

Events such as Parents' Days, Open Days, Sports Days, concerts and educational visits need to be planned well beforehand otherwise confusion and disappointment are bound to come. Such occasions are best planned at a staff meeting so that all the teachers know what the future programme will be and can plan their own contribution accordingly. It is good that the staff should be allowed to share as much as possible the knowledge of what is going on in the school. It encourages team spirit and helps to improve the tone of the school.

The Head should keep a diary in which he enters all the forthcoming events. It should include the special occasions mentioned above and all routine matters like games fixtures with other schools, the dates of outside exams that some of his children may be entered for and all his official engagements. Such a diary allows him to plan dates for forthcoming events with confidence, and allows him to see at a glance what these events are.

With such a diary to prompt him, a Head can send out letters making arrangements for important occasions in plenty of time. For most things, a month is not too much ahead of time for these letters.

Nearer the time of each occasion, the staff concerned can be asked how their particular preparations are progressing so that when the time comes for the concert, sports day or whatever it is, everybody is ready and well prepared and the programme goes through without a hitch. After everything is over, those who helped should be personally thanked. Any from outside who gave help should be sent a letter of thanks.

5. *Sports activities*

It sometimes happens that the school team waits expectantly for a visiting team and makes extensive preparations, but the visiting team does not turn up. Such disappointments are usually the result of inadequate planning and liaison between the schools.

Early in the year the teacher in charge of games should draw up a list of the matches to be played throughout the year. He should then write to the schools with whom these matches are planned and get confirmation of the dates. About a month before each date, he should again write a note confirming the fixture. This will reduce the possibility of disappointment.

When a team is sent to play a game with another school, a member of staff must accompany them.

6. *Seasonal activities*

There are some schools in which the arrival of the wet season and the consequent need for farm tools and seeds seems to come as a complete surprise. They are not prepared either with labour or materials. Tasks like these which are not carried on throughout the year but are seasonal, need to be planned ahead by the headteacher.

In many schools the ways the problem is tackled is quite unsatisfactory. The children are sent out to do whatever jobs there are in rural science, handwork or physical education periods to the detriment of these subjects. A better arrangement is for the headteacher to make seasonal adjustments to the time table so that a smaller share of teaching time is given in the dry season to those subjects that need more time in the wet season, if they are to include such things as grass cutting and tending the flower beds. But it is important to remember, when adjusting the time table, that a subject like arithmetic with six lessons per week is less adversely affected by the loss of one lesson per week than some other subject for which the allocation may be only two or three periods per week.

7. *Staff meetings*

These are invaluable for promoting unity of purpose and should be used by the Head to do the following things:

(a) Plan the programme of future events.
(b) Give teachers routine notices which they ought to know, or information from school authorities or the Ministry of Education.
(c) Discuss changes or improvements in school organization, discipline and other practical matters.
(d) Stimulate interest in modern educational thought and practice.
(e) Encourage friendship among the staff.

Staff meetings should be regular, especially in bigger schools; and even when there is no matter of importance for the agenda, the meeting can be held and allowed to become a short social event with perhaps tea and biscuits.

An *agenda* is important and the Head should give much thought beforehand to the matters for the agenda so that he can explain points clearly and argue convincingly when necessary. But he should respect the feelings and opinions of the staff and be prepared to modify his own wishes if there is a good reason.

Minutes of each meeting should be kept. These provide a record from one meeting to another and from one year to another. This is important when staff changes are frequent and especially when a headteacher is transferred. Minutes also provide the Head with the accepted resolutions of each meeting and help to keep an impatient Head from hasty action.

ADMINISTRATION

The headteacher, in addition to the task of planning the activities of the school, must see that these plans are effectively and efficiently put into action. This is administration. The following are useful points for assuring good administration:

1. *The Headteacher's office*

The Head's office is the nerve centre of the school. Into it go all the reports and information that enable him to plan the activities of the school and assess the extent to which the school is attaining its purpose. Out of the office come all the plans and programmes that make the school what it is.

To be effective, in doing this, the office must be used properly. There should be files into which letters and circulars from various sources are put and are available for reference at any time. There should also be copies of all the letters which go out from the office so that the headmaster or his successor can check what has been said in any correspondence. Copies of all time tables and duty rotas should be kept in the office so that the headmaster can check these things in a moment. Likewise all records of pupils should be filed in the office.

If money or valuables are kept in the school, they should be in the office, preferably in a proper safe. The office should be considered a place which no pupil or member of staff enters without permission.

2. *The allocation of teaching staff*

One of the Head's jobs is to make the best use of his staff. It is most important to realize in this matter, which of the primary school years are the most critical and therefore deserving of the best members of staff. The most important years are:

(a) The first two years or infant years.
(b) The last year of the primary school.
(c) Any class which is a reception class from other feeder schools.

The *infant years* are vital because it is during them that the essential skills of number work, reading and writing are introduced. These are too important to be given to a junior member of staff. Many a child goes through school educationally lame because he did not get a proper grasp in his infant years of the basic skills on which all his later formal education depends. He is the sad product of an infant teacher who did not do his job properly and later teachers who did not have the time to rectify his weaknesses.

The *final year* of the primary school is an important one because, for many children, it is their last year of formal education. In it, the teacher, like the foreman of a boat-building team, must check and put the finishing touches to the work of all who have shared in the building before launching each child into the river of adult life.

In this year too, there are children being prepared for further education whose minds must be tuned to the higher intellectual pace that will be demanded of them. There are children to find schools for and children to encourage. This is not work for the beginner or the teacher interested only in his pay. It is vital work and worthy only of the dedicated and experienced teacher.

A *reception class* taking in new children from a number of feeder schools is also important. In it, the teacher must cope with a class of children whose individual attainments will vary much more than those in a normal class which has been taught as a unit for some time. The teacher of a reception class has the added disadvantage often of having no information about the educational ability of the new children. Consequently, he must find out all the information about each of his pupils by himself. The *attainment* and *diagnostic* testing required for this demand an able and experienced teacher.

The question of whether it is better to keep each teacher to one class or allow each teacher to take only a limited range of subjects depends, in the primary school, entirely on the qualifications of the teachers. In principle, infant classes should have the same teacher all the time and this teacher should move up with them. The same should happen in the junior and senior classes of the primary school. But so long as the high proportion of untrained and inadequately trained teachers remains, some sharing of classes will be necessary.

As a general rule, no inexperienced or unqualified teacher should be put in charge of one of the important classes already mentioned. These classes benefit from the continuity and security that one able teacher gives them. A second rule is that the basic skill subjects should be given to those on the staff best qualified to teach them, leaving the practical and information subjects to the less qualified teachers.

3. *Staff duties*

If the staff of a school are to work well together, there must be an understanding and fair allocation of the extra duties that have to be done in schools by teachers. The Head should make every effort before the beginning of the session to find out the interests and temperament of his teachers. This will help him in appointing teachers wisely to such duties as games coaching, care of the library, visual aids, production of concerts and those aspects of school life in which certain teachers find special interests and pleasure.

But there are the routine duties too and these are best shared out as fairly as possible. These will be performed with better spirit if the headteacher's relationships with his staff are good. Such relationships are built up by fostering a team spirit amongst the staff and by wise leadership. A good staff spirit exists when the members know how to give and take, know what they are working for and take pride in each other's successes and those of the whole school.

4. *Time Tables*

The skill of the Head is put to the test in his preparation of the time tables. In it he tries to bring subjects, teachers, classes, rooms and school equipment together in the best possible permutations.

In infant classes, there is a good case for blocking the time table into *units of activity* rather than as formal lesson periods. In this case, the first half of the morning might be devoted to *number activities* involving things, such as measuring, buying and selling and various number games; or more formal individual work, such as carrying out the instructions on arithmetic work cards. Another part of the day might, in the same way, be devoted to *language activities* such as reading, writing, spelling, story telling and so forth. This kind of time table allows the teacher greater freedom for organizing activities, but it requires a teacher of understanding if the time is not to be wasted.

A good general time table should fulfil the following requirements:

(a) Provide teaching each day for at least the minimum time required by law.
(b) Give teaching time to each subject in proportion to its demands.
(c) Allow an adequate number of short breaks. The younger children require one almost every hour. Older children need only half as many.
(d) Subjects requiring concentration need to be put early in the day though preferably not first period in the day. They can also be put immediately after short breaks.
(e) Practical subjects and those which require physical activity must be alternated as far as possible with mentally demanding and less active ones.
(f) Physical education is best held at a time of day when the sun is not too hot and when the children are not too tired from long walks to school.

5. *Examinations*

Much inefficiency results from badly organized or carelessly administered examinations. The following advice should be helpful in making them run smoothly:

(a) *Plan an examination time table*

In externally set exams a very carefully planned programme is drawn up giving the date and exact time at which each paper is to be started. Within the school's own examination programme, it is not necessary to be so detailed, but everyone—teachers, pupils and administrators—should know in advance what the dates and times of the papers are to be. Start and finish the papers punctually.

Exams should be planned so that as little time as possible is wasted. There is no place for the 'one-paper-per-day' system in the primary school. One hour is quite long enough for any paper for a primary school and so three or four exams can be held on the same day.

It is helpful to plan the order of exams so that those that are mentally demanding, like arithmetic, are interspersed with those which are not so pressing such as geography, rural science, etc.

(b) *Prepare the room*

Honesty can be ensured by placing the children's seats far enough apart to make copying impossible. But honesty is better encouraged by sound moral training. Remove from the walls all charts, maps, pictures and such things as might be of assistance to the pupils.

It is a mistake to make internal exams loom large in the children's thoughts. Children should be trained right from the start to take exams in their stride. It is bad for teachers to use the threat of exams as a bogy to whip up fear in the children and their importance should never be overstressed.

(*c*) *Prepare the materials*

All that is required for the exam should be ready in good time. If the questions have been printed on papers, these question papers should all be in the room ready for distribution when the children come. If the questions are written on the blackboard, the children should not be allowed to talk when they come into the room.

Answer papers should be ready for distribution at the beginning of the exam. So also should clean blotting paper. Children should not be allowed to bring in books, magazines or paper to lean on. If the desks are too rough, the teacher should provide extra paper for leaning on.

(*d*) *Prepare the invigilators*

Some headteachers forbid class teachers to invigilate their own classes. But whoever the invigilator is, he should be clear, before he enters the room, concerning all the details of the exam and rules for invigilation. External examining bodies usually publish their own instructions and the invigilator must be thoroughly familiar with these.

One of the worst abuses in examinations is the doing of rough work. Many children develop the habit of doing their rough work on the question paper, blotting paper or scraps of paper—

anywhere in fact except on the answer paper. This is a bad habit. Children should be taught from the start to write everything on their answer paper. Those things they do not want to be read should have a line drawn neatly through them. In arithmetic rough working is an important and integral part of the test. Full marks cannot be given unless all the working is shown.

At the end of the exam the invigilator should stop all the children from writing and collect their answer papers. These papers should then be delivered to the Head who will see that they are safely handed over to the appropriate member of staff for marking.

Section B

BEFORE A NEW SESSION

1. Make a visit to a local school and find out how the following things are obtained for the staff and pupils:

Uniforms.
Textbooks.
Stationery supplies (pencils, pens, rulers, rubbers).
Notebooks.
Chalk.
Blackboard dusters.
Pictures.
Filmstrips.
Library books.
Drawing paper.
Paints for art.
Crayons.
Handwork materials.
Physical education equipment.
Buckets.
Brooms.

Find out also how the following kinds of repair jobs are done when needed:

Cement and plaster cracks.
Roof leaks.
Small furniture repairs (loose hinges, screws, etc.)
Big furniture repairs (broken legs, etc.)
Blackboard painting.
Distempering of walls.
Painting woodwork.

Inquire what notification is made locally of the date of opening and how fees are collected and dealt with by the Head.

2. Discuss the kinds of material improvements to the school buildings and furniture that a headteacher can reasonably expect to be helped with and the kinds of improvements that he can aim at achieving through his own effort and that of his staff.

THE FIRST DAY OF TERM

1. Make as complete a list as you can of all the things that must be done on the first day of a new term in a primary school. Discuss the best ways of getting these things done and the part the Head and staff will play in all these.

2. What kind of duties is a class prefect called upon to do? Discuss the kind of child who would make a good class prefect and also the arguments for and against changing the class prefect once per month.

3. Make a list of the duties for which class rotas are necessary and discuss ways in which the class teacher can make the children take a pride in the way they carry out these duties.

THE LAST DAY OF TERM

1. Make as complete a list as you can of all the things that must be done on the last day of term in a primary school and say who should do them and how they should be done.

2. Study the list of records dealt with in Chapter 18 with particular reference to those that must be completed by teachers at the end of the year and those of concern to the Head at that time.

SPECIAL OCCASIONS

1. Discuss the value of each of the following special occasions carried out in a primary school:

A Parents' Day.	A Sports Day.
A Safety Week.	A Concert.
A Health Week.	A Local Survey.

Make detailed planning notes for one or more of them to include the following points:

(a) The programme of events or activities.
(b) The preparations necessary beforehand inside the school.
(c) The preparations that must be made beforehand with people outside the school.
(d) The allocation of duties to staff and pupils.

The planning of this will be more realistic if you can get permission to organize such an occasion either in your college or in a primary school during teaching practice.

2. Read the following letter and answer the questions below:

Gindiri Demonstration School,
P.O. Barakin Ladi,
via JOS.
23 January 1963

The Manager,
Terco Ltd.,
JOS.

Dear Sir,

Educational Visit

I would be very grateful if you would be kind enough to make arrangements for my class of 10-year-old children to be shown round your factory. There are 38 children in the class including girls and boys.

They are at present studying 'Transport' in history and I believe that seeing how modern science enables tyres to be remoulded will be valuable to them in this. I would also like them to see for their general knowledge, how a factory is run and its need for efficient men and methods.

May I suggest 9.30 a.m. on Thursday 21 February? If this time and date is unsuitable, would you please suggest an alternative.

Yours faithfully,
W. A. Nimutum
Headmaster

Questions:

(a) What value is there in stating the number of children in the class, their approximate age and the fact that there are boys and girls?
(b) What do you think was the teacher's purpose in telling the manager what the children were studying in school?
(c) How has the teacher shown respect to the manager and complimented him without using flowery language?
(d) Would this letter form a satisfactory model for other letters making arrangements for educational visits?
(e) How has this teacher shown that he plans his lessons well ahead?
(f) Write an example of the kind of letter of thanks you would write after the visit had been successfully made.
(g) Describe how you would prepare a class of children for such a visit and how you would follow up the visit in school.

SPORTS ACTIVITIES

1. With the help of a calendar, find suitable dates that fall in your football season or that of any other game that is taught in school. Draw up a possible fixture list including matches with other schools in the neighbourhood and internal house matches.

2. Suggest ways in which the games master can encourage good sportsmanship amongst his players and also amongst those who are not in the school team.

3. Write a specimen letter asking another school for a match fixture.

4. Find out what various primary schools do about the travel costs involved in sending teams to play schools away from home.

SEASONAL ACTIVITIES

1. Make a list of the activities in the school which are seasonal, not being carried on throughout the year. Beside each, note what equipment or tools are needed for carrying out the activities satisfactorily. Discuss ways of planning for the activities, without adversely affecting the subject teaching of the time table, so that people and tools are ready when the work must begin.

2. Discuss the value of farming and gardening as part of the school curriculum. Consider in your discussion whether class farms or individual plots are to be preferred and whether the growing of flowers for beauty is sufficiently accepted in Africa to be worth encouraging.

3. Find out as many systems as you can which are used by schools for keeping their school grounds and playing fields neat and trim throughout the year. Which system do you think is the best and most practicable?

4. Using the time analysis shown on page 339 (fig 83), calculate the total number of teaching periods for each subject in one class (e.g. class 5) over a whole year, i.e., forty weeks. Work out also the percentage of the year's teaching that ten periods represents to each subject.

If we say that extra activities should cause no more than a 5 per cent loss of teaching time to any subject, find out how many subjects can afford to lose no more than one period per month.

STAFF MEETINGS

1. If you have previously taught, what criticisms would you make about staff meetings you have attended?

2. Prepare agendas for the following staff meetings in a primary school:

(a) At the beginning of the school year.
(b) At the end of the school year.
(c) Before special occasions. See page 333, Special occasions, question 1.

3. Discuss the value of having an agenda and in writing minutes for staff meetings. Consider also the amount of detail that should be given in minutes and the best form in which they should be written.

4. When you go on teaching practice, let one of your student colleagues be appointed leader. Let him arrange a private staff meeting for the student teachers working in the school. An agenda should be prepared and be distributed before the meeting and minutes should be written. The leader should act in the same capacity as if he was the headmaster. After the period of teaching practice is over, discuss the value of the staff meeting thus arranged.

THE HEADTEACHER'S OFFICE

1. Examine the method of filing correspondence, circulars and record cards in your Demonstration School. Ask the Head to describe what he does with incoming and outgoing mail. Try to get a clear idea of the way he deals with the secretarial side of his work.

In the same way, find out what records are kept in the office and the use the Head makes of these records. Ask if you may see the official diary showing how he records the dates of special occasions and engagements.

Ask the Head to describe the administrative work he has to do with regard to the school as a whole, the staff, the classes and individual pupils.

Find out how he deals with petty cash, the amount he is allowed to handle and the record he keeps of how it is used.

2. Discuss the value in making the headteacher's office a place which is closed to pupils and staff unless they are invited in.

THE ALLOCATION OF TEACHING STAFF

1. In primary schools there are different practices in allocating staff. These are:

(a) Each teacher has a class to himself and teaches all subjects in it.

(b) Each teacher takes only a limited number of subjects, particularly those he is well qualified in, and teaches these in several classes.

Discuss the merits of each practice in relation to the primary school, keeping in mind that some teachers have strong characters and others not so strong and also that the degree of specialization among primary school teachers is very limited. Tabulate your main arguments for and against each practice. What method would you prefer to use in your school?

2. In schools where every teacher is in charge of one class what liaison is necessary between the various members of staff?

3. In a primary school consisting of seven classes, you are Head and you have on your staff, in addition to yourself, the teachers listed below. Answer the questions about how they might best be used:

Two untrained teachers with no previous teaching experience.
Three teachers trained for junior primary work, each with two years experience.
Two teachers trained for senior primary work each with three years experience.

(a) How would you allocate your staff to teaching duties so as to fulfil each of the following aims?

i To benefit the children.
ii To help the untrained teacher.
iii To make the trained teachers happy.
iv To allow yourself to teach as many of the classes as possible but still have enough time for supervision.
v To get good results in the Primary School Leaving Certificate exams and entrance for many children into secondary schools and colleges.

(b) Are all the alternative aims above necessarily conflicting?
(c) Which aim do you think is the most important?
(d) What alteration would you make to your allocation if one of your senior teachers also had special rural science training?
(e) How would you allocate the staff if all had exactly the same qualifications and differed only in length of service, each having one more year than his junior. Thus you, the Head, would have seven years, the next six years and so on to the most junior with no teaching experience.

STAFF DUTIES

1. The following is a list of the main routine duties which some schools require their teaching staff to perform. Study the list and add to it any other duties required of teachers in schools that you know; then answer the questions that follow:

Looking after the library.
Coaching and refereeing games.
Checking morning sweeping, cleaning and the preparation of drinking water.
Supervision of children in the playground during school breaks.
Assembly of children outside the school before entry.
Inspection of children.
Preparation of the school and its equipment before each new term.
Supervision of school lunches.
Marking the register.
Submitting lesson notes for checking by the Head.
Conducting morning prayers.
Supervision of detention periods.
Attending staff meetings.
In charge of school 'houses'.

(a) Is it fair to ask teachers to do all these?
(b) Is it necessary for teachers to do all these?
(c) Can you offer any alternative suggestion for ensuring that the duties are satisfactorily done?
(d) Discuss things not officially required of teachers but which you think a teacher should be prepared to do for the good of the children and the school.

2. Discuss ways in which the staff can be drawn together and helped to gain a kind of team spirit amongst themselves.

TIME TABLES

1. Here are practical steps to follow when drawing up a time table. See that the requirements enumerated on page 330 are fulfilled. Study them and discuss each step.

(a) Select the best time to begin school, break for play and lunch, and when to close school each day.
(b) Decide on the best length for lesson periods.
(c) First fill in on the time table form all those things that happen at a fixed time every day, e.g. assembly, registration, breaks, etc.
(d) Fill in those lesson periods that cannot be altered from a specific time, e.g. broadcast lessons, periods taken by specialist or outside teachers and lessons requiring special rooms.
(e) Enter the subjects requiring the best periods in the day for concentration. Allocate no more periods than the time analysis allows for.
(f) Enter the other subjects in the same way.
(g) Check the time table for the total number of periods for each class per week. These must all be the same.

(h) Check that every subject gets its correct allocation of periods in accordance with the time analysis.

(i) Try out the time table for a week to ensure that no mistakes have escaped your notice.

SUBJECTS	CLASS 1	CLASS 2	CLASS 3	CLASS 4	CLASS 5	CLASS 6	CLASS 7
Reading	6	6	—	—	—	—	—
Writing	5	4	2	2	1	1	1
Vernacular	1	1	1	1	—	—	—
English	—	—	6	6	8	8	8
Arithmetic	5	6	6	6	7	7	7
Religious Knowledge	5	5	5	5	4	4	4
Art and Handwork	6	6	4	4	4	3	3
Rural Science	2	2	4	4	4	4	4
Physical Education	5	5	5	5	4	4	4
General Knowledge	2	2	—	—	—	—	—
Geography	—	—	2	2	2	2	2
History	—	—	2	2	2	2	2
Music	2	2	2	2	1	1	1
Library	—	—	—	—	1	2	2
Broadcasts	1	1	1	1	2	2	2
Total	40	40	40	40	40	40	40

Fig 83. Time analysis of weekly periods for a Primary School

2. Discuss the following practices and the advantages and disadvantages that each offers. Say what your solution would be in each case.

(a) Educational authorities that publish a standard time table to be used in all their schools.

(b) Schools which hold the physical education lesson always as the first in the morning.

(c) Schools which mark the beginning and end of all periods with a bell that must be adhered to.

3. Remembering the points in 1 above and on page 330 and using the time analysis given in fig 83 on page 339, make a time table for each of the classes in the school, assuming that only one teacher teaches in any class and that he takes all subjects.

4. Supposing in a school the staff were as follows:

A A probationary teacher with no experience.
B An untrained teacher with several years teaching experience.
C A teacher with junior primary training and one year's experience.
D A teacher with junior primary training and two year's experience.
E A teacher with junior primary training and three year's experience.
F A teacher with senior primary training and three year's experience with special qualifications in rural science.
G A teacher with senior primary training and three years' experience with special qualifications in handwork.
H A headteacher with senior primary training and six years' experience.

Make up a time table for the school using the time analysis given in fig 83 on page 339 and ensuring that the following provisions are made:

(a) E and D take all subjects in class 1 and 2 respectively.
(b) C takes all the arithmetic, English, geography, history and music in class 3 and 4.
(c) F is primarily responsible for class 5 where he takes arithmetic, English, geography and history. But he also teaches rural science from class 3 upwards.
(d) G is primarily responsible for class 7 where he takes arithmetic, English, geography and history. But he also teaches handwork from class 3 upwards.
(e) H takes all the library, broadcast and writing lessons from class 3 upwards.
(f) A and B are required to teach all the remaining periods in the school so that they have an equal share of teaching.

Suggest how A, B and H's non-teaching time could profitably be spent.

5. In some towns, a central Domestic Science centre serves all the schools in the town. This means that the girls in a class go away for perhaps a whole morning each week. What arrangements would you make on the time table for the boys who are left?

6. Analyse the time table of your Demonstration School and see to what extent it fulfils the requirements of a good time table. See pages 330 and 339.

EXAMINATIONS

1. Study the instructions to invigilators given to your college principal for the external examinations you sit. Discuss the reasons for each rule and regulation.

2. Discuss the kinds of test or examination you would use to get information for putting on the children's reports in each of the classes of a primary school.

3. Discuss seriously the value of the kind of examinations in which the questions to be asked are given to the children beforehand so that they can study them well; or examinations which are not done individually but as group efforts by three or four children per group.

4. What is the importance of security in the traditional examination system? Discuss how security can be maintained from the time the questions are made up until the time the results are made known.

For Further Reading

H. JOWITT. *Suggested Organization for the African School.* Longmans.
Organization. Mariannhill Press.

18. SCHOOL RECORDS

Section A

ABOUT RECORDS

In his work as the organizer and administrator of the school, the headteacher must have accurate information to help him assess how his school is progressing. Records help him to do this. Some are required by law; some are not, but are helpful if kept.

There are other records which do not directly concern the Head but are useful to the school if kept. All the following records have proved useful. In each case part of a specimen page is given, showing the ruling and kinds of note or comment that is recorded.

If records are to be of use, they must fulfil certain conditions. These conditions are summarized below:

Records must be *used.* If they are tossed away without being studied, then no benefit is derived from them. Experience is a great teacher.

Records must be *available.* There is no use in keeping records if their resting place is uncertain. You must be able to lay your hand on them in a moment if they are to be useful.

Records must be *complete.* If they are not regularly kept they will be incomplete and misleading. They may hinder rather than help if they are unreliable because of incompleteness.

Records must be *honest.* You must record the bad with the good. Exaggerated reports or untrue statements make a mockery of the record system and render them worthless.

THE VISITORS' BOOK

Such a book, containing the names and addresses of all those who have come to visit the school, provides a permanent and useful record of the interest taken in the school by outsiders. It also provides the means of contacting these people again if this should be desired.

Unless the visitors' book is kept in a prominent place, it tends to be forgotten. Therefore the Head should keep it in a handy place in his office and get into the habit of inviting every visitor to sign it.

DATE	NAME	ADDRESS	REMARKS

Fig 84. Visitors' book

THE LOG BOOK

This book is required by most educational authorities and provides a record of the main events that have taken place during the year including experiments and innovations which have been tried. Such a book can be made more interesting to the reader by

DATE	EVENTS REPORTED
8·2·60	The school opened today with 126 boys and 14 girls (140) on the roll R. O Nnams (Headmaster)
19·5·60	I visited the school today to check up on preparations being made to receive a large group of students from Gindiri Teacher Training College for three weeks teaching practice. The stock of text books was complete and other supplies were adequate. Teachers' schemes of work were checked and collected by the headmaster for showing to the students when they arrive. I have authorised the whitewashing of the interior walls of all the Junior Primary classrooms G.W. Dearsley (Manager)
30·9·60	Talatu Maicibi died of pneumonia today at the hospital. Representatives from her class attended the funeral R.O. Nnams (Headmaster)

Fig 85. Log book

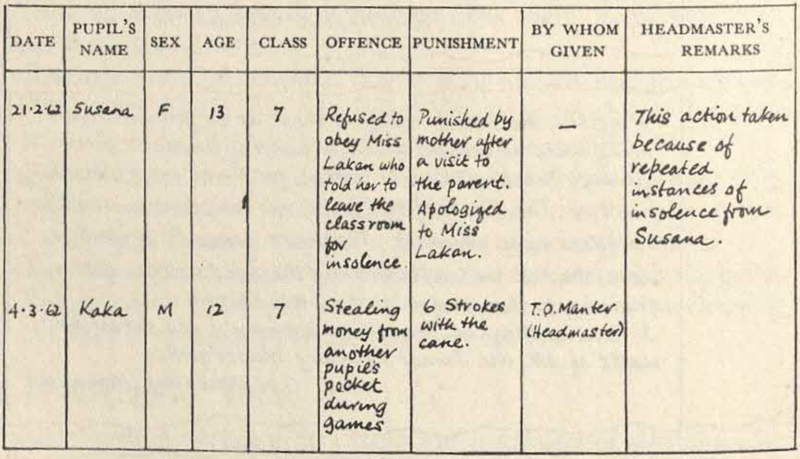
the inclusion of photographs, maps and sketches to illustrate the notes. When full, the log book should be stored carefully in a safe place and a new one begun. Some day your log book may become an important historical document.

THE PUNISHMENT BOOK

The purpose of this record is to protect the child from unreasonable punishment from teachers and to protect teachers from unwarranted criticism by parents or others resulting from exaggerated reports of punishments given. It can only do this if it is faithfully kept.

The record should contain not only occasions when corporal punishment is administered but those when other *important* punishments are given. Minor offences and trivial punishments should not be entered.

If well kept, such a record can be used to check on the past behaviour of a difficult child and see what kind of offences he is prone to. This might provide the clue to discovering the root cause of his trouble.

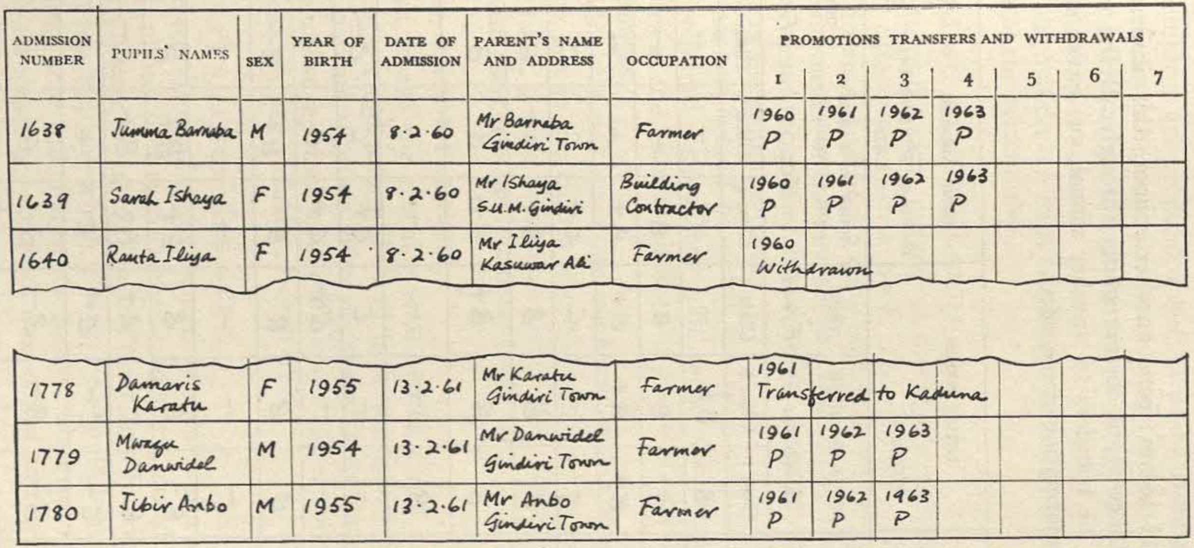


DATE	PUPIL'S NAME	SEX	AGE	CLASS	OFFENCE	PUNISHMENT	BY WHOM GIVEN	HEADMASTER'S REMARKS
21·2·62	Susana	F	13	7	Refused to obey Miss Lakan who told her to leave the classroom for insolence.	Punished by mother after a visit to the parent. Apologized to Miss Lakan.	—	This action taken because of repeated instances of insolence from Susana.
4·3·62	Kaka	M	12	7	Stealing money from another pupil's pocket during games	6 Strokes with the cane.	T.O. Manter (Headmaster)	

Fig 86. Punishment book

THE ADMISSION BOOK

This is often the worst kept of all the records and yet it can be one of the most useful. On entry to the school, each child is given a serial admission number which he keeps all the time he is at

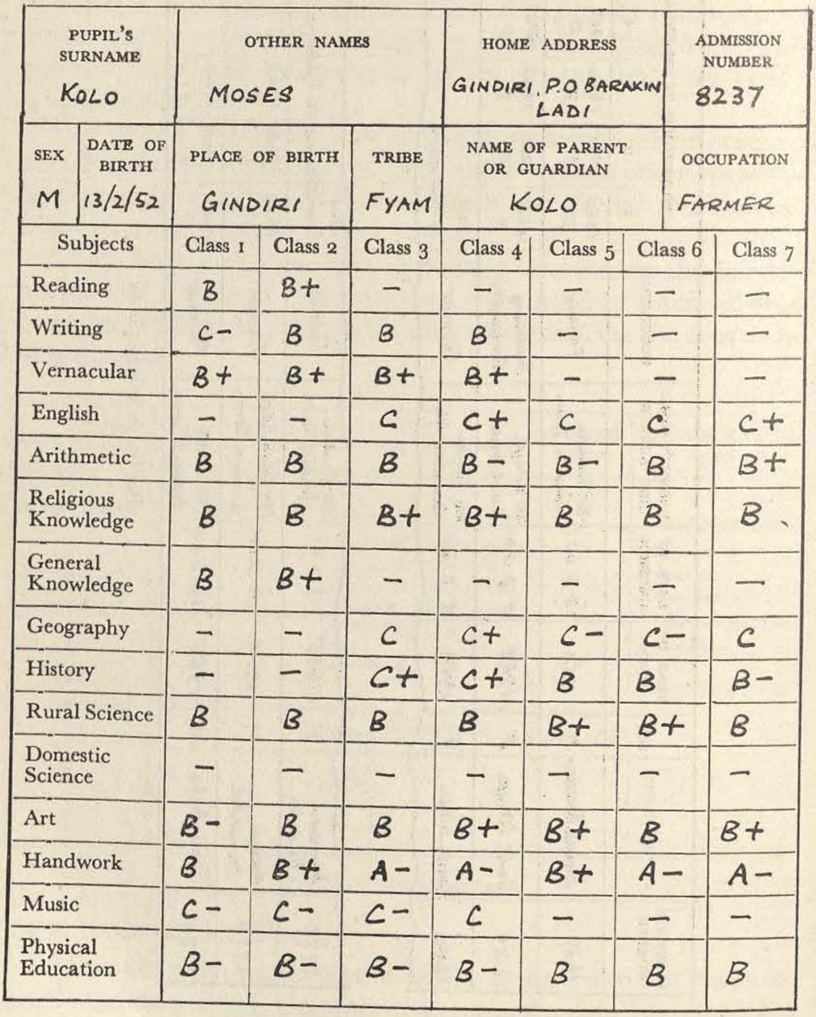


ADMISSION NUMBER	PUPILS' NAMES	SEX	YEAR OF BIRTH	DATE OF ADMISSION	PARENT'S NAME AND ADDRESS	OCCUPATION	PROMOTIONS TRANSFERS AND WITHDRAWALS						
							1	2	3	4	5	6	7
1638	Jumma Barnaba	M	1954	8·2·60	Mr Barnaba Gindiri Town	Farmer	1960 P	1961 P	1962 P	1963 P			
1639	Sarah Ishaya	F	1954	8·2·60	Mr Ishaya S.U.M. Gindiri	Building Contractor	1960 P	1961 P	1962 P	1963 P			
1640	Rauta Iliya	F	1954	8·2·60	Mr Iliya Kasuwar Ali	Farmer	1960 Withdrawn						
1778	Damaris Karatu	F	1955	13·2·61	Mr Karatu Gindiri Town	Farmer	1961 Transferred to Kaduna						
1779	Mwagu Danwidel	M	1954	13·2·61	Mr Danwidel Gindiri Town	Farmer	1961 P	1962 P	1963 P				
1780	Jibir Anbo	M	1955	13·2·61	Mr Anbo Gindiri Town	Farmer	1961 P	1962 P	1963 P				

Fig 87. Admission book

school. Personal information is recorded together with his progress from year to year.

If a child comes from another school, this information is recorded. Likewise, if, before going through all the classes in the school, he transfers to another school, or leaves school for good, this information is recorded.



PUPIL'S SURNAME	OTHER NAMES	HOME ADDRESS	ADMISSION NUMBER
KOLO	MOSES	GINDIRI. P.O BARAKIN LADI	8237

SEX	DATE OF BIRTH	PLACE OF BIRTH	TRIBE	NAME OF PARENT OR GUARDIAN	OCCUPATION
M	13/2/52	GINDIRI	FYAM	KOLO	FARMER

Subjects	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7
Reading	B	B+	—	—	—	—	—
Writing	C−	B	B	B	—	—	—
Vernacular	B+	B+	B+	B+	—	—	—
English	—	—	C	C+	C	C	C+
Arithmetic	B	B	B	B−	B−	B	B+
Religious Knowledge	B	B	B+	B+	B	B	B
General Knowledge	B	B+	—	—	—	—	—
Geography	—	—	C	C+	C−	C−	C
History	—	—	C+	C+	B	B	B−
Rural Science	B	B	B	B	B+	B+	B
Domestic Science	—	—	—	—	—	—	—
Art	B−	B	B	B+	B+	B	B+
Handwork	B	B+	A−	A−	B+	A−	A−
Music	C−	C−	C−	C	—	—	—
Physical Education	B−	B−	B−	B−	B	B	B

Fig 88. Individual record card

The headteacher or school authorities can see in this record whether children are progressing well or whether some are having to repeat classes. They can also quickly see the areas the school is serving and whether any local district or village is notable in not sending children to school.

Such information is a most helpful guide to the head in his task of service to the community.

INDIVIDUAL RECORD CARDS

These serve the same purpose as the admission book. But they are more adaptable than a book. For example, when a child transfers to another school a copy of his record card can be sent to the headmaster of the new school, thus giving him useful information concerning the child's ability because it contains a summary of his annual reports.

New teachers would be saved the long term of observation usually required before they can assess the capabilities and weaknesses of the individuals in their classes if such record cards were available.

Individual record cards are confidential and should be kept in a filing box in the Head's office. They should be available only to authorized people. For convenience they should be filed by classes with the cards in alphabetical order.

PUPILS' REPORT CARDS

By this means the teaching staff of the school can keep the parents of a child informed as to his progress. It thus gives interested parents accurate information and helps parents who are ignorant about the working of the school a better understanding of its purpose and their child's place in it.

THE ATTENDANCE REGISTER

This record is required by regulation but it is also helpful to the Head. It allows him to trace the attendance record of any child who is backward or in trouble and thus assist him in helping the child. It lets him see which parents he should visit or interview concerning poor attendance. Normally, however, it is the class teacher's responsibility to check attendance and see that regular attendance is maintained.

In most countries the attendance register must be written up

REPORT CARD

Name JAMES ORKA Class 6 Year 1962 Class Teacher T.N. BULBULA

Subjects	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Teacher's Final Comments
Reading	—	—	—	—	
Writing	—	—	—	—	
Vernacular	—	—	—	—	
English	B	A	A	A	A good command in oral and written work
Arithmetic	A	A	A	A	Excellent work
Religious Knowledge	C	B	B	B	Good progress
General Knowledge	—	—	—	—	
Geography	B	B	A	A	Shows good interest
History	C	B	B	A	Marked improvement
Rural Science	B	B	B	B	Works well on farm
Domestic Science	—	—	—	—	
Art	C	C	B	B	Too mechanical
Handwork	B	B	C	B	Rather slow
Music	B	A	A	A	Good singing voice
Physical Education	B	C	B	B	Sometimes nervous
CHARACTER					
Obedience	B	B	B	B	
Truthfulness	A	A	A	A	
Courtesy	A	A	A	A	
Cheerfulness	B	B	A	A	
Co-operativeness	A	A	A	A	
Hard Working	A	A	A	A	

Grading	PARENT'S SIGNATURE:	
A Very satisfactory	First Quarter	P. Orka
B Satisfactory	Second Quarter	P. Orka
C Need for Improvement	Third Quarter	P. Orka
D Unsatisfactory	Fourth Quarter	P. Orka
	HEADMASTER'S SIGNATURE	C. L. Toro

Fig 89. Pupil's report card

REG. NO.	NO.	NAMES	WEEK ENDING..2:2:62.....						WEEK ENDING..9:2:62...					
			M	T	W	T	F		M	T	W	T	F	
1316	1	Atukwa, Amagon	∧	∧	∧	∧	∧		∧	∧	∧	∧	/	
1393	2	Ali, Audu	∧	∧	∧	∧	∧		∧	∧	∧	∧	/	
1334	3	Amalah, Adakol	∧	∧	∧	∧	∧		∧	∧	∧	∧	/	
1337	4	Arigwai, Allabwang	∧	∧	∧	∧	∧		∧	∧		∧	/	
1340	5	Banni, Barau	∧	∧	∧	∧	∧		∧	∧	∧	∧	/	
1335	6	Bisi, Kwarshak	∧	∧	∧	∧	∧		∧	∧	∧	∧	/	
	7													
1339	37	Sunday, John	∧	∧	∧	∧	∧		∧	∧	∧	∧	/	
1321	38	Sesugh, Iyorfa	∧	∧	∧				∧	∧	∧	∧	/	
1390	39	Umaru, Jika	∧	∧	∧	∧	∧		∧	∧	∧	∧	/	
1392	40	Yaki, Bigwan	∧	∧	∧	∧	∧		∧	∧	∧	∧	/	
(Each day counts as two sessions)														
		Number of Sessions	2	2	2	2	2	10	2	2	2	2	1	
		Average Attendance	40	40	40	39	39	39·6	40	40	39	40	20	35·8
		Total No. of Attendances	80	80	80	78	78		80	80	78	80	40	

Fig 90. Attendance register

ADMISSION NUMBER	PUPIL'S NAMES IN CLASS	DATE PAID	FEES PAID
1129	Caleb Chundusu	18/1/62	1 5 0
1130	Bitrus Chwang	18/1/62	1 5 0
1131	Bot Davou	18/1/62	1 5 0
1165	Yusufu Pam	20/1/62	1 5 0
1166	Jacob Taguai	18/1/62	1 5 0
1167	Abraham Ven	18/1/62	1 5 0
1168	John Voh	18/1/62	1 5 0

Fig 91. Register of school fees

twice per day—at the beginning of the morning session and the session immediately after the long break.

REGISTER OF SCHOOL FEES

This information is often kept in the attendance register or in the admission book, but some school authorities prefer to have separate books that can be sent in to the central office for checking.

THE SCHOOL CASH BOOK

The headteacher handles a lot of money in the course of a year and he needs to keep a strict record of it if he is to

£ s. d.	RECEIPTS	DATE	EXPENDITURE	£ s. d.
153 15 0	123 sets of fees	18/1/62	—	
46 5 0	37 sets of fees	20/1/62	—	
	—	20/1/62	160 sets fees	200 0 0
			handed over to	
			supervisor	
	—	8/9/62	New football	3 7 6
4 9	Fruit sold	1/10/62	—	
2 3	Fruit sold	15/10/62	—	
1 5 7	Money for handwork	19/10/62	—	
	—	15/11/62	School Prizes	4 15 0
229 16 5	TOTAL	10/12/62	TOTAL	221 4 7
8 11 10	BALANCE		—	

Fig 92. School cash book

be able to account for it all. He will record in it all items of receipt or expenditure, including school fees, craft sales, etc. He should be able to produce a receipt for all sums of money paid out.

A cash book carefully kept, will prevent a Head from getting into the difficulties that many do through carelessness, and give him a clear picture year by year of how the school finances stand.

THE STAFF RECORD BOOK

A list of the teachers in the school with their registration numbers and qualifications may be kept by the Head. When a teacher joins the staff this fact is recorded together with the date. When he leaves, the date and reason for leaving is recorded. Such a record is useful to a Head for planning the teaching programme, particularly if the classes taught by each teacher are likewise recorded. The Head should record his staff in a new page each year.

THE STOCK BOOK

The purpose of this book is to keep a careful check on the supply of equipment available to schools and prevent wasteful usage.

There are two kinds of stock and they are usually divided thus:

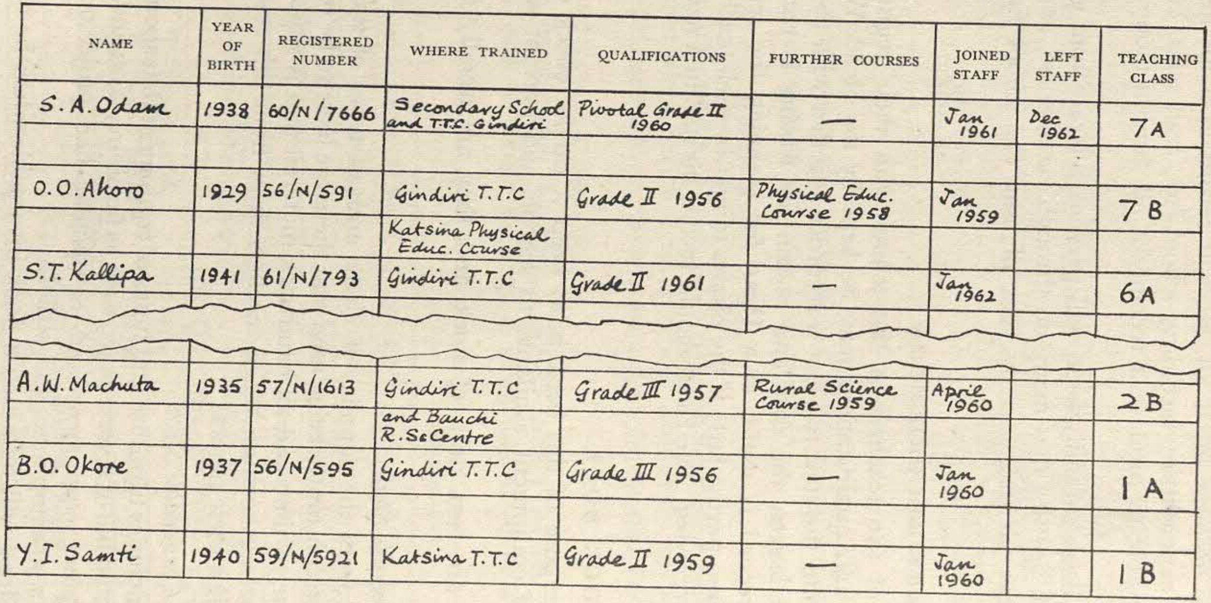
(a) *Consumable Stock*

This covers the supplies of chalk and all types of stationery which are constantly being used and therefore have to be replaced from time to time and all handwork material that is supplied by the school authorities. When teachers draw from this stock they should sign their names.

(b) *Non-Consumable Stock*

This includes furniture and items of equipment that should have an expected life of several years, such as furniture, farm and garden tools, games equipment and equipment like projectors, tape recorders, gramophones and radios.

The Head will find such a book invaluable when he comes to make up his list of supplies needed for the new session and it will help him to foresee the running out of supplies of any commodity



NAME	YEAR OF BIRTH	REGISTERED NUMBER	WHERE TRAINED	QUALIFICATIONS	FURTHER COURSES	JOINED STAFF	LEFT STAFF	TEACHING CLASS
S. A. Odam	1938	60/N/7666	Secondary School and T.T.C. Gindiri	Pivotal Grade II 1960	—	Jan 1961	Dec 1962	7A
O.O. Akoro	1929	56/N/591	Gindiri T.T.C	Grade II 1956	Physical Educ. Course 1958	Jan 1959		7 B
			Katsina Physical Educ. Course					
S.T. Kallipa	1941	61/N/793	Gindiri T.T.C	Grade II 1961	—	Jan 1962		6A
A.W. Machuta	1935	57/N/1613	Gindiri T.T.C	Grade III 1957	Rural Science Course 1959	April 1960		2B
			and Bauchi R.Sc Centre					
B.O. Okore	1937	56/N/595	Gindiri T.T.C	Grade III 1956	—	Jan 1960		1 A
Y.I. Samti	1940	59/N/5921	Katsina T.T.C	Grade II 1959	—	Jan 1960		1 B

Fig 93. Staff record book

and allow him either to restrict its use or place an order for more.

THE HEALTH RECORD BOOK

In many areas, schools must still take the initiative in getting children to receive medical treatment for various forms of sickness. If a health record book is kept, showing the names of all children sent to the local dispensary for treatment together with the date, reason for treatment and treatment given filled in by the dispensary attendant, then the Head can check up on the health record of individual children and advise parents on hospital treatment if this seems advisable.

FARM RECORDS

In a school with a constantly changing population of children and staff, a record book of this kind is the only way of ensuring proper continuity of rotation. It also prevents the children's work from being mere labouring and puts it on the same plane as that of the scientist, who when a discovery is made, can trace back the steps which led to it and thus determine the process by which it can be repeated.

Each class farm should have a book and contain the following sections:

(a) *Plots* There should be a section for each plot on the farm. The number of plots will depend on the rotation used. For example, a four-year rotation will have four plots and therefore four sections in the book. In each plot section of the book should be recorded the work done, the amount of seed planted, the spacing and the dressing used. When harvest comes, the yields of each crop should be noted and the date, so that differences from year to year can be compared. Any experiments or noteworthy points should be recorded (see fig 96 on page 357).

(b) *Cash.* In this section is recorded a statement of all income and expenditure connected with the farm. It should include also the expenses and returns from any livestock kept. The Head should be able to see from this record the extent to which the farm is self-supporting.

(c) *Weather.* A summary of the daily weather records is also useful for comparison with crop yields from year to year.

NON-CONSUMABLE EQUIPMENT

Date	Desks	Chairs (children)	Chairs (staff)	Tables	Cupboards	Portable Blackboard	Easel	Type-writer	Filing Cabinet
21/12/62	280	560	17	20	16	2	2	1	1
15/1/63	– / 280	– / 560	– / 17	– / 20	– / 16	– / 2	– / 2	– / 1	– / 1
20/2/63	10 / 290	24 / 584	6 / 23	1 / 21	– / 16	2 / 4	2 / 4	– / 1	– / 1
20/2/63	10 / 280	24 / 560	3 / 20	1. / 20	– / 16	– / 4	– / 4	– / 1	– / 1
28/6/63	– / 280	– / 560	– / 20	– / 20	– / 16	– / 4	– / 4	– / 1	– / 1

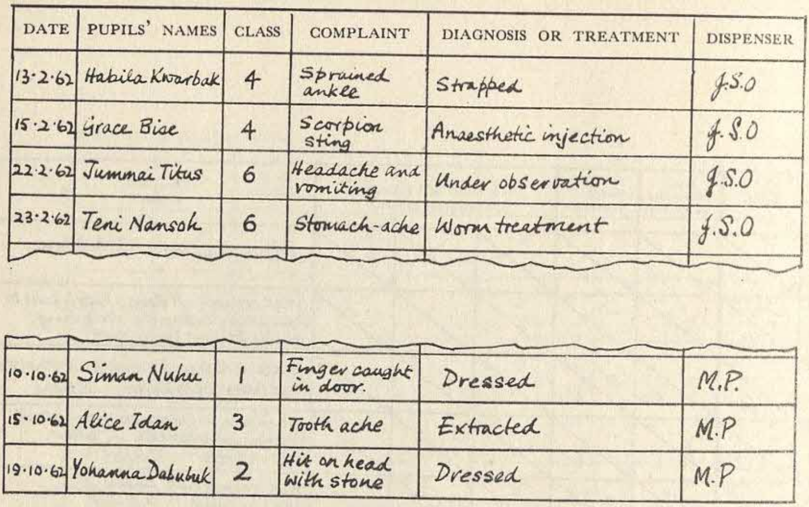
CONSUMABLE EQUIPMENT

Date	Exercise Books (Narrow lines) Dozens	Exercise Books (wide lines) Dozens	Drawing Books Dozens	Pencils Dozens	Pens Dozens	Rulers Dozens	Rubbers Dozens	Paint Boxes Dozens	Blackboard Dusters
21/12/62	– / 19	– / 15	– / 3	– / 6	– / 3	– / 5	– / 1	– / 1	– / 0
15/1/63	288 / 307	288 / 303	48 / 51	72 / 78	48 / 51	48 / 53	48 / 49	48 / 49	14 / 14
15/1/63	50 / 257	50 / 253	13 / 37	44 / 34	13 / 38	13 / 40	48 / 1	13 / 36	14 / 0
4/2/63	12 / 245	12 / 241	– / 37	– / 34	– / 38	– / 40	– / 1	– / 36	– / 0
18/2/63	14 / 231	12 / 229	– / 37	– / 34	– / 38	– / 40	– / 1	– / 36	– / 0
4/3/63	15 / 216	10 / 219	– / 37	6 / 28	– / 38	– / 40	– / 1	– / 36	– / 0

Fig 94. Stock book

Duplicator	Radio	Filmstrip projector	6-volt Battery	Stock Books and Library (See separate record)			Notes and Reports
1	2	1	1				Stock checked. S.A.Odam
– / 1	– / 2	– / 1	– / 1				Stock received. P.Bobo. Letter sent to Education Authority reporting badly broken furniture.
– / 1	– / 2	– / 1	– / 1				Received from Education Authority See letter ED/492/63 P.Bobo
– / 1	– / 2	– / 1	– / 1				Furniture withdrawn from stock Permission granted in letter ED/492/63 P.Bobo
– / 1	– / 2	– / 1	– / 1				Mid term stock check. All correct. P.Bobo

White Chalk Boxes	Coloured Chalk Boxes	Drawing Pins Boxes of 1 gross	Powder Paste Packets	Sugar Paper Sheets	Card Sheets	Blotting paper Sheets	Notes and Reports
– / 6	– / 2	– / 2	– / 2	– / 80	– / 60	– / 10	End of year check. New stock ordered from Education Authority. S.A. Odam
12 / 18	4 / 6	14 / 16	6 / 8	480 / 560	480 / 540	72 / 82	New stock received. P.Bobo
1 / 17	1 / 5	14 / 2	1 / 7	30 / 530	30 / 510	28 / 54	New Term issue made P.Bobo
1 / 16	– / 5	– / 2	– / 7	50 / 480	50 / 460	– / 54	Issued. P.Bobo
1 / 15	– / 5	– / 2	1 / 6	50 / 430	50 / 410	– / 54	Issued. P.Bobo
1 / 14	– / 5	– / 2	– / 6	10 / 420	25 / 385	– / 54	Issued. P.Bobo



DATE	PUPILS' NAMES	CLASS	COMPLAINT	DIAGNOSIS OR TREATMENT	DISPENSER
13·2·62	Habila Kwarbak	4	Sprained ankle	Strapped	J.S.O
15·2·62	Grace Bise	4	Scorpion sting	Anaesthetic injection	J.S.O
22·2·62	Jummai Titus	6	Headache and vomiting	Under observation	J.S.O
23·2·62	Teni Nansoh	6	Stomach-ache	Worm treatment	J.S.O
10·10·62	Siman Nuhu	1	Finger caught in door.	Dressed	M.P.
15·10·62	Alice Idan	3	Tooth ache	Extracted	M.P
19·10·62	Yohanna Dalubuk	2	Hit on head with stone	Dressed	M.P

Fig 95. Health record book

THE CRAFT RECORD CHART

Frequently, through insufficient space or equipment, it is not possible to have all the children in a class doing the same activity. The solution is to group the children so that each group is engaged in a different activity. By keeping a record of what each child has done, the class teacher can ensure that they eventually complete all the activities. This system has useful applications to reading and arithmetic teaching. An example for craft activities is shown in fig 99.

SYLLABUSES AND SCHEMES OF WORK

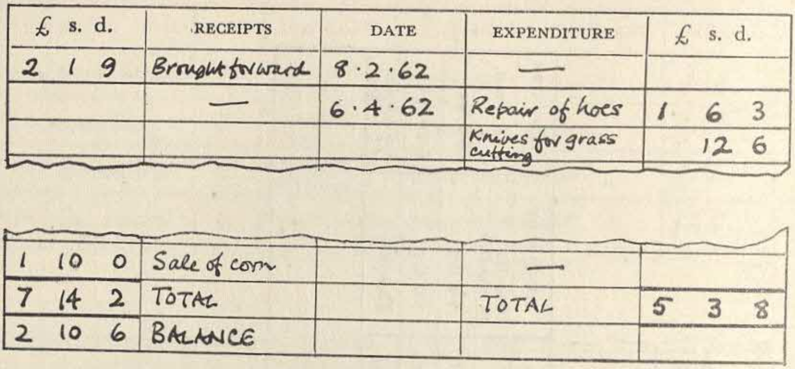
Too often a new teacher arrives at a school and finds it difficult to find out what he is to teach. This need not be so if the Head keeps in his office copies of all the official syllabuses followed in the school.

Most authorities provide some kind of scheme of work which breaks up the syllabus into teaching units. Copies of these should also be kept by the Head so that explanations to new teachers are simple. See fig 67 on page 228, which shows the type of help a scheme of work gives.

PLOT	CROP	RATE/ACRE	RATE/PLOT ⅛ ACRE	CULTIVATION	SEEDS/HOLE	SPACING	YIELD/PLOT	YIELD/ACRE
A 1962	Maize	12 lbs	1½ lbs	ridges 3ft apart	2 seeds	3ft apart	1600 lbs on the cob	5·8 tons
B 1962	Soya beans	30 lbs	3¾ lbs	ridges 3ft apart	1 seed	4 ins. apart	96 lbs	768 lbs
C 1962	Guinea Corn	15 lbs	1⅞ lbs	ridges 3ft apart	3 seeds	18 ins apart	80 lbs	640 lbs
D 1962	Potatoes	80 lbs	10 lbs	ridges 2ft apart Well composted	1 tuber	15 ins apart	320 lbs	2.560 lbs = 1·1 tons

Notes: The composting gave favourable results with the potatoes.
The guinea corn was rather disappointing.

Fig 96. Farm plot record for one class



£ s. d.	RECEIPTS	DATE	EXPENDITURE	£ s. d.
2 1 9	Brought forward	8·2·62	—	
	—	6·4·62	Repair of hoes	1 6 3
			Knives for grass cutting	12 6
1 10 0	Sale of corn		—	
7 14 2	TOTAL		TOTAL	5 3 8
2 10 6	BALANCE			

Fig 97. Farm cash book

LESSON NOTEBOOKS

In some countries, regulations demand that these should be kept by teachers and be available for examination by education officials at any time.

Such notebooks are sometimes helpful to a Head in keeping him in touch with what is being taught in his school. But a better assessment can be gauged by watching teachers in action and listening to their lessons from time to time.

A system for keeping a satisfactory lesson notebook is described on pages 230–231.

RECORD OF WORK BOOK

Sometimes when a teacher falls sick and another has to take over his classes, his successor finds surprising announcements from the children, 'We've done this before'. Or he may find inexplicable gaps in their knowledge. The usual cause for this is that the previous teacher has not kept a record of the work he has done in class.

Each teacher should record very briefly in his Record of Work Book at the end of each week what he has actually taught and resist the temptation to write down what he hoped to cover. The Head should be able to hand over a well-kept Record of Work Book to a new teacher, confident that the class will not lose badly by the change of teachers.

MAY			JUNE			JULY		
DATE	MIDDAY TEMPERATURE	RAINFALL	DATE	MIDDAY TEMPERATURE	RAINFALL	DATE	MIDDAY TEMPERATURE	RAINFALL
1	89° F	0·05"	1	86° F	–	1	78° F	1·20"
2	90° F	–	2	86° F	1·03"	2	82° F	0·90"
26	88° F	–	26	89 F	–	26	80 F	1·30"
27	88° F	–	27	84° F	0·75"	27	82° F	0·20"
28	89° F	–	28	84° F	1·18"	28	84° F	0·30"
29	90° F	–	29	80° F	0·01"	29	84° F	0·69"
30	88° F	0·44"	30	80° F	0·10"	30	78° F	2·56"
31	85° F	–				31	76° F	–
AVERAGE OR TOTAL	88° F	2·35"	AVERAGE OR TOTAL	84° F	10·39"	AVERAGE OR TOTAL	78° F	16·56"

Fig 98. Weather record

PUPILS' NAMES	PAPER FOLDING	BASKET WORK	CLAY MODELLING	ROPE MAKING	WEAVING	BOOK BINDING
Joel Abraham	✓					✓
David Baba	✓					✓
Gufel Barbella	✓					✓
Pori Cinhai		✓	✓			
Yanki Dabak		✓	✓			
Joseph Pochen				✓	✓	
Yusufu Riba				✓	✓	
Rahila Somlek				✓	✓	
James Samei				✓	✓	
Thomas ZaKara				✓	✓	

Fig 99. Craft record chart

SUBJECTS	ARITHMETIC	GEOGRAPHY	HISTORY	RURAL SCIENCE
WEEK 21	Division of fractions by whole numbers Ex. 67-69 Division by proper fractions Ex. 70-72	The BaIla of Rhodesia, their homes and way of life	The early slave trade. The growth of the slave trade.	Diseases carried by blood-sucking insects Mosquito - malaria Tse Tse - sleeping sickness
WEEK 22	Division of fractions by mixed numbers Ex 73-75 Simple problems on division of fractions	Groups: modelling a BaIla home. Modelling a BaIla village.	The abolition of the slave trade. The effects of the abolition of the slave trade	Rat fleas - plague Lice - typhus Tick - tick fever
WEEK 40	Revision examples on area Ex 107 Revision examples on scale Ex 108	Revision - completing the map of summary charts for the year's visits	Review of countries which have become independent this year	Harvesting and threshing of farm crops

Fig 100. Record of work

Section B

GENERAL

1. Make a list of the school records that are required by the education law. Discuss why you think these particular ones are specified.

2. Study in your Demonstration School the types of record described in this chapter. Compare any differences you find in the

details of what they record. Discuss the merits of each, trying to decide on the best form in which they should be printed.

3. Discuss the points about records, summarized on page 342.

4. Ask a headteacher to describe the use he makes of all the types of record kept in his school.

THE VISITORS' BOOK

1. Why should a headteacher welcome particularly the following types of visitor? Suggest common reasons for the visits of each type and discuss how the Head can make the best use of their visits.

(a) Parents.
(b) Government inspectors.
(c) School authority representatives.
(d) Student teachers.

2. Suggest ways and means in which a headmaster can encourage local visitors without their visits becoming a hindrance to the teaching in the school.

THE LOG BOOK

1. Make a fairly detailed list of the kind of items which it is useful to record in the Log Book explaining your reasons for including each item.

2. Do you know of any private or official diaries or log books that have become historically important since the date they were written? What type of information did they contain?

THE PUNISHMENT BOOK

1. Discuss the kind of offences and punishments that should be recorded in the Punishment Book.

2. Explain why you think a punishment book is a useful record.

3. Discuss the implications of corporal punishment in relation to:

(a) pupils.
(b) teachers.

Should corporal punishment be used only as a last resort or do do you think it is a legitimate form of child training? Discuss the manner of giving corporal punishment so that the obvious abuses of it can be avoided.

4. Make a study of a problem child in school. Find out how the school has dealt with his case, what kinds of punishment have been used and what has been their effect on his behaviour? Attempt an explanation of the results you discover.

THE ADMISSION BOOK

1. Apart from the fact that the Admission Book is a compulsory record for school management, can you see its value to the head-teacher and staff of a school?

2. Discuss the value of keeping in the Admission Book a record of the parents' occupations.

3. Study your Demonstration School Admission Book and see how it is kept and what use is made of it during the year.

INDIVIDUAL RECORD CARDS

1. What advantages have individual record cards over an Admission Book with regard to the information that can be recorded?

2. What value is there in keeping the following information on a record card?

(a) Health record.
(b) Character record.
(c) Special tuition for backwardness.
(d) Special talents or weaknesses.

3. Would you class the pupil whose record is shown in fig 88 on page 346 as a good, average, or poor pupil. Classify his strong subjects and those in which he was weak at the following stages:

(a) End of infant school.
(b) End of junior primary.
(c) End of senior primary.

Would he make a good candidate for teacher training?

PUPIL'S REPORT CARD

1. The frequency of the issue of reports varies from school to school. Some issue them as often as every six weeks and some only once a year. Some schools do not issue any report cards. Discuss

the value of report cards as a record for parents of their children's progress during the year. Decide also with what frequency they should be issued.

2. Consider the format of the report card shown in fig 89 on page 348 and compare it with other report cards with which you have had experience. Discuss the value of the system of grading and the way used to record the child's character.

3. What recommendation would you give this child if you were his headteacher and he was applying for entrance to a secondary school?

THE ATTENDANCE REGISTER

1. Take note of the official regulations pertaining to the marking of the Attendance Register as they apply in your area. Note the times at which the register should be marked and the method of marking pupils present, absent or sick for the day's sessions.

2. Discuss the action a teacher should take with a child he suspects of truancy.

3. What are the most common causes of absence from school by children? Discuss this together with the measures that a class teacher can take to encourage a high standard of attendance by his children.

4. Is regular attendance a problem in the schools in which you have taught? Discuss this question with teachers who have had experience in a number of schools.

REGISTER OF SCHOOL FEES

1. How are the fees collected in your Demonstration School? Is the method the best system or could you improve on it? Check on the way the headmaster ensures the security of the cash collected and provides parents and school authorities with proof of every set of fees paid in.

2. Discuss the merits of 'free education' as opposed to that in which fees are charged.

3. Should fees cover everything or is it better that fees be small and the child be required to provide his own textbooks, notebooks, pencils, pens, rulers, etc.?

THE SCHOOL CASH BOOK

1. What are the normal sources of income and causes for expenditure in a primary school? Discuss this first and then check with a headmaster to see if he agrees.

2. Find out from a headmaster, points about school cash such as follows:

(a) What means are provided in the school for the safe keeping of money?
(b) What is the largest amount of money he is allowed to keep before either banking it or handing it over to the school authorities?
(c) What kinds of thing is he authorized to pay for out of the funds in his care?
(d) What happens when his accounts do not tally exactly with his cash?

THE STAFF RECORD BOOK

1. What is the value of keeping a record of the staff information like that shown in fig 93 on page 352?

2. Find out how staff are appointed for your Demonstration School and see if it is the same as for other local schools.

3. How long do you think a teacher should stay in the same school? Discuss this question in relation to the following grades of teacher:

(a) A pupil teacher.
(b) An uncertificated teacher.
(c) A teacher qualified for junior primary work only.
(d) A fully qualified primary school teacher.

THE STOCK BOOK

1. Make an inventory of the non-consumable stock in your Demonstration School and find out the procedure for obtaining new stock and dealing with old stock that is broken beyond repair.

2. What measures can a head take to prolong the useful life of his non-consumable stock? In your answer deal with the following:

(a) Care of equipment which is in use.
(b) Care of equipment when not in use.
(c) Stocktaking and the use of the stock book.

3. Make as complete a list as you can of the materials you would include in the Stock Book under the heading 'consumable equipment'. Find out how this stock is replenished in your Demonstration School and how it is issued.

4. Check the stock of consumable equipment with the records shown in the stock book either for your college or Demonstration School and assess the approximate consumption per month of each item.

THE HEALTH RECORD BOOK

1. What is the method of dealing with the health complaints of children attending your Demonstration School? How far is the nearest dispensary? How far is the nearest hospital?

2. Discuss the value for teachers in having some knowledge of the common complaints of children such as are listed on pages 51 and 52.

3. What medicines and equipment would you suggest should be kept in the school first-aid box?

4. What action would you take over a pupil who has a bad attendance record due to ill health?

FARM RECORDS

1. Visit the Demonstration School farms or gardens to see the arrangements of plots. Find out the answers to the following questions by studying the farm records:

(a) What rotation is used on the farm?
(b) What treatment with manure or fertilizer did the ground receive before planting?
(c) What crops have been planted?
(d) Where was the seed obtained from? Was cash paid?
(e) What happens to the crops after harvest?
(f) Is the farm self-supporting financially?

2. What value is there in children keeping weather records?

3. Comment on the following statements:

(a) 'Farming is beneath the dignity of educated people.'
(b) 'If only farmers could be taught to farm scientifically, the world's starving millions could be fed.'
(c) 'Farming and religion have much in common; both depend on faith in God and both supply mankind with essential food. They should therefore be basic subjects in the school curriculum.'

THE CRAFT RECORD CHART

1. Why is it important for the teacher to keep a record of each child's activities in craft?

2. What application does this type of chart have for children's supplementary reading and assignments in practical arithmetic?
3. Make up a record chart for some practical activities in which your student class participates either in groups or as individuals.

SYLLABUSES, SCHEMES OF WORK AND LESSON NOTES

(See Chapter 11, 'Preparing to Teach'.)

RECORD OF WORK BOOK

1. Discuss the pros and cons for filling up the Record of Work Book daily or weekly.
2. Look at a teacher's scheme of work and his record of work and see whether you could begin to teach his class without asking him any questions.
3. Discuss the amount of detail you should record for each lesson in a Record of Work Book. Do you think the amount of detail will vary from subject to subject?

For Further Reading

H. JOWITT. *Suggested Organization for the African School*. Longmans.

Part 7

AIMS

19. EDUCATION AND PHILOSOPHY

Section A

WHAT IS EDUCATION?

It is important that all who play a part in the work of schools should remember that education existed long before organized schools or schoolteachers were ever thought of. Education is not something different from life and society but is in fact the process of learning to live as a useful and acceptable member of the community.

It is important also to realize that formal education, as provided in schools, is one of the least permanent of the forces which influence boys and girls. Its effects are often quickly and permanently swallowed up by the other conflicting social pressures of the community.

In times past, the community accepted and supported traditional forms of education as provided by parents in the home and by priests in religious ceremonies or initiation rites, because this was in harmony with the tribe as a whole. Today, unfortunately, there is often a rift between schools and the community, because what the school offers has often very little in common with the standards and needs of the local community. It is this that makes the young primary school leaver who cannot find a job such a problem to himself, his family and community. The whole position is further confused by the modern trends of urbanization and industrialization which bring together groups of people with differing ways of life, standards of conduct, interests and beliefs.

The teacher must see himself and his school as part of education in its widest sense; otherwise his view will be shortsighted and his contribution will fall far short of what is needed. He must realize that educational aims may be *immediate* or *long term* and that they may be *social* or *individual*. Immediate goals are usually fairly easy to achieve but are of little value apart from long term aims.

For example, a teacher may achieve quickly the immediate aim of making a child able to read words. But this is an insignificant aim compared with teaching a child to enjoy reading. On the social plane there is no value in producing a child who is good at his school work who is at the same time rebellious towards the community.

All the aims of education should harmonize in seeking to produce people who are completely integrated with the community. The social misfit as well as the young school failure are both reflections of unreached goals of education.

Too many teachers consider only their immediate aims and fail to ponder the long term aims that alone make their efforts worth while. Usually this is because the immediate problems seem more pressing. By ignoring the long term aims, teachers sacrifice the ultimate value of all their efforts, but by giving thought to them they can enrich their lives and teaching and make purposeful their work and their lessons.

WHAT IS MAN?

Since education in its widest sense is 'learning to live', it is obvious that the nature of man and the purpose of life must be vital to a true understanding of the purpose of education.

But immediately we ask such questions as 'What is man?' or 'What is the meaning of life?' we are swept into the ranks of philosophers whose answers to such questions are legion. Basically, however, there are two answers.

There are those who claim that all life is given by God; thus to them, the purpose of man's life lies in the will and purposes of God. Others who do not believe in God, regard the existence of man as the result of a process of evolution from chemical substances through lowly forms of life to man himself.

Each of these views has a profound effect upon those who hold them, and indeed they have influenced the course of history. But the classification is not a simple, clear-cut one. Those who hold one view may range widely in the details of their philosophy. For example, the first or *religious* view embraces the Christian, the Muslim and the animist; and the second or *rationalist* view includes such diverging groups as the *humanists* and the *communists*. But even when we have classified people in these ways, we have to acknowledge that within the religious groups there are rationalists and amongst the rationalists there are some who are deeply religious. The ultimate dividing line is between those who take the revelation of God and the word of God as the final authority over man and his conduct and those who put man himself as bearing the authority and responsibility for his life and development.

Most rationalists are willing to accept anything that can be proved. But proof for them means *tangible* proof. They believe only in the world that they can see and measure and in the natural laws which they see controlling it. They see man as having come into existence by these inexorable laws and describe his origin in terms like *evolution* and *natural selection*. To those who see man's existence in this way, mankind consists of individuals who are born into the world, live out their days and go into oblivion at death. The value of each individual depends entirely on what he achieves in his lifetime, whether it be improving the state of society or merely passing on his knowledge to his children.

These views bring very different results. In the case of the humanists, a man is seen to be of intrinsic worth because of his thought, knowledge and intelligence. He is therefore worthy of respect as an individual in his own right. The communists, on the other hand, interpret the role of the individual as a cog in the machine. For them, each man exists for the sake of society. He bears the same relationship to society as the individual ant does to the nest to which it belongs.

In terms of history, both the humanists and the communists regard each individual as contributing his services to a machine whether we call it Civilization or the State. But though this contribution may be small, both are convinced that man, given time, can bring about a perfect society.

The religious groups are not so sure. They take into consideration not only man and his limited world of space, time and material existence, but his relationship to a supra-natural world governed by God its creator. They see themselves and their fellow men as the creatures of God and therefore subject to His Divine will. Life for them is a preparation for a future existence which will be perfect. Their aim therefore in this life is to fulfil all that is required by the Creator to enter into His Perfect Kingdom. This sense of personal and physical involvement with a spiritual world reaching beyond the bounds of space and time is a fundamental difference between the religious view and the rationalist and has a deep influence upon teachers who approach their work from the different viewpoints.

For example, the concept of a value like freedom varies according to one's philosophy. One rationalist view is that sometimes it may be desirable for an individual to enjoy freedom but at other times it is not. It all depends on circumstances.

Another rationalist, on the other hand, thinks of freedom as a relative term, being absolute only when society is perfect. In the meantime, man must relinquish part of his freedom to the rule of whatever power he thinks is likely to bring about the greatest measure of freedom for all.

The religious view of freedom is that God gives to all men freedom to choose the kind of freedom they want. It concedes with the other philosophies that freedom is good only when the individual is willing to give up his freedom to do as he likes and subjects himself to authority and law. To do otherwise is to bring about anarchy. But with the religious view, perfect freedom is enjoyed when the individual freely chooses to yield up his freedom and make himself subject to God.

In the same way, your understanding of democracy and authority, equality and inequality, love and demand, duty and pleasure all depend on your personal philosophy concerning the nature and destiny of man. That is why you as a teacher must ponder these things so that your teaching may be purposeful and with conviction. Nothing is more out of keeping with principles of education than the teacher who holds certain values and seeks to share them with others without knowing why he holds them or understanding what their full meaning is.

WHAT IS TRUTH?

In a world in which ideologies conflict and lead ever more closely to the threat of global, atomic war and the annihilation of man, it is reasonable to ask 'What in the world is real and what is illusory? What is true and what is false? What is good and what is evil?'

Philosophers have asked the same questions from early times but reached different conclusions. One has said in answer to the question whether man is real or not, 'I believe I exist'. Others, uncertain of any reality beyond the present material world, have set down the code for life 'Let us eat, drink and be merry, for tomorrow we die'. These are all rationalist views.

The religious view rejects the rationalist philosophy as man-made and sees God as the source of all reality and all truth. In this view, history and eternity are married and reality is defined as revealed truth.

This may seem like pointless argument unless we appreciate that the root trouble with society is that it is not sure of the reality or the value of its individuals. Side by side with modern technological progress there has been a remarkable decline in conviction concerning ultimate realities and purposes. In this process, the machine has replaced the individual not only in his work but in his status. The nuclear bomb and the rocket have diverted the concern of man from man himself and turned him into a refugee from his own creation. Society is in danger of developing the wretched morale of a refugee camp. It is for this reason that teachers must take stock of what is real and true and good.

But how are we to know these values? If we inquire what men mean by *good*, we find there is not as much agreement as might be expected. Instead we find goodness tends to be simply what is regarded as good in one's own community. Thus there are communities in the world where effeminacy among men, bullying or success in crime and other characteristics, widely held in other communities as repulsive, are regarded with approval as being good. The fact that these are perhaps isolated cases or minorities among mankind does not lessen the argument that goodness is thought by most people, not as an absolute standard, but rather in an *empirical* or *relative* sense in that it is what suits our need. It is rather like the way we use the word 'good' about a bicycle or sewing machine when they serve our needs well. They cease to be good when they break down and no longer do their job.

The same applies to *truth*. Throughout history men have sought to find the truth about their world, the laws that govern it and their own existence. But again we see the same pattern of divergent opinions in which some believe man's present state to be the climax of an incredibly long period of development whereas others hold to a belief in the creation of man at some fixed point of time. None of these views can be proved scientifically. There always comes a point where the mind must take a step of faith. The danger to truth is when men find pleasure in the machinery of the search for it. When this happens their concentration moves to the fascination of a game with words and ideas, and sight is lost of the real purpose of their search.

The rationalist takes his step of faith by placing his faith in his own reason and so truth for him becomes what he says it is. The religious view takes a step of faith which opens up communication between God and man.

The obvious problem, when we consider the varied rationalist interpretations of truth and the differences amongst those who hold a religious view of truth is 'Who is right?' If all the rationalist has to do is to argue convincingly, and all the holder of religious views has to do is to plead that God has spoken to him, are we any nearer to the truth if we listen to them? The answer is 'yes' if they keep on getting the same honest answer from their search. If any single rationalist philosophy is true it will always reach the same answer. Its proofs will always lead to the same conclusions. Likewise if any religious view of truth is right it will always teach the same truths. Any religious view of God must regard God as absolute and unchanging Truth. Thus any religious view which claims a changing record of revealed truth must be suspected of being influenced more by man with his changing values and standards than by an unchanging God. This can be our only test of truth.

Today, because so many people holding rationalist and religious views of truth find themselves holding conceptions of truth which are relative and not absolute, we find all kinds of values in a state of flux. Moral standards are losing their absolute qualities and traditional codes of behaviour are becoming quickly outdated because they do not make sense in the modern world. The distinction between right and wrong is becoming hazy. The result is a society that lacks a sense of security and this society is fathering a new society in which the original concepts of truth and goodness will be almost meaningless.

What can the teacher do who fears the demoralization of society? Should he push his own views down the throat of his pupils? This would be to deny the children individual freedom and breed an intense sectarian form of education. Reaction to this would bring about an opposite effect to that intended; this is seen in the American system of state education where, today, religious instruction is forbidden although the whole system was founded in a country in which religious beliefs were once deeply felt.

The answer is for the teacher to present his beliefs in action, not as a classroom subject, but through his life. That is not to say that formal teaching will have no place. On the contrary, truth cannot be found in ignorance; it can only be understood and interpreted in terms of what we know. But the proof of truth will be evident as something more than a mere philosophy. It will be demonstrated as a working and satisfying way of life which the child is free to choose or reject. Thus the teacher shows he respects the freedom and individuality of personal choice, while offering the best life he knows to those he teaches.

Section B

WHAT IS EDUCATION?

1. Find from a book on the History of Education or by other means the kind of education and methods used by two or more of the following societies:

(a) One of the ancient civilizations (Egypt, Greece, China, Rome).
(b) A period in Europe either before or after the Renaissance.
(c) Your own people before European influence.

Discuss how each society prepared its young people with regard to the following:

(a) Beliefs concerning man and his world.
(b) Living in harmony with the community.
(c) Obtaining food and livelihood.
(d) Surviving against natural enemies and human enemies.
(e) Getting knowledge.

2. Consider fig 101 and answer the following questions.

(a) What kinds of thing does the child learn from each of the forces shown as influencing his life? E.g. What skills, knowledge, experience, opinions, customs, convictions and standards of conduct does he learn from the family, school, community, etc.?
(b) Which of these forces tends to be most permanent after the child has become an adult?
(c) What happens when there is a conflict between what the child learns from the different forces influencing him?
(d) Place the forces in what you think are their relative order of effectiveness towards the full education of the average child.
(e) Re-draw the diagram putting the elements of each social force into what you think is their order of importance. The strongest should be shown closest to the child and the weakest towards the points of the star. For example in the case of the family, if you think parents have the greatest influence over the child, then write 'parents' near to the child and if you think distant relatives have least influence, then write that near the point of the star.

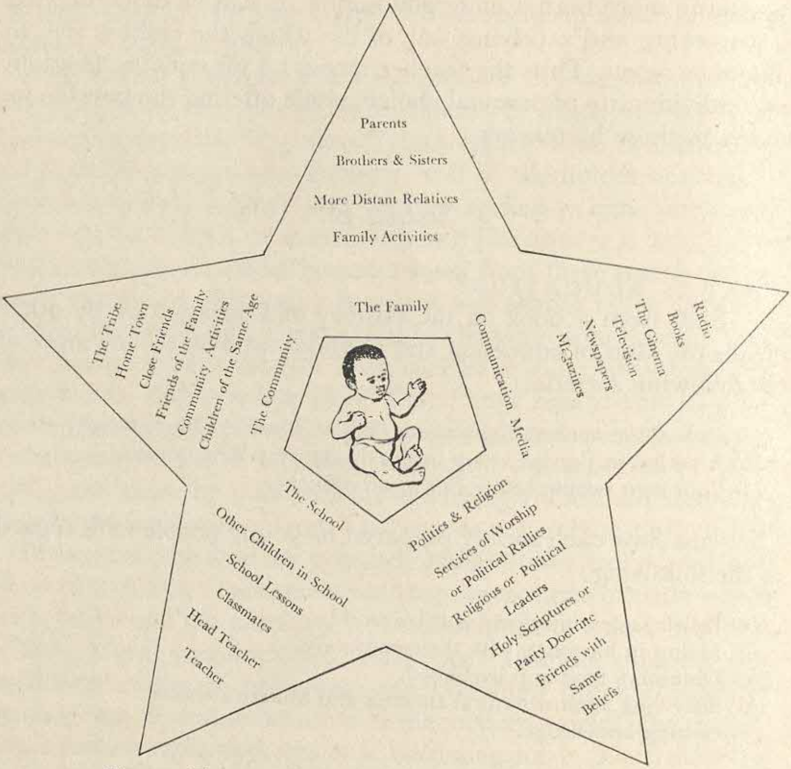


Fig 101. The social forces influencing the child's education

3. Make a list of immediate or short term aims and one of general or long term ones for:

(a) The teacher in his teaching.
(b) The pupil in his learning.

Remember, the good teacher considers not only his own aims but tries to harmonize them with his pupils' aims.

4. What changes are needed in schools to make the young school leavers more integrated with the community even when there are not sufficient salaried jobs for them all? Discuss this problem in relation to:

(a) The school.
(b) The community.
(c) The child.

5. Put the following aims of education into perspective by saying which are social aims and which are individual aims. In cases where they represent a harmony of aims, you should make a note to that effect.

(a) To get academic success in external exams with pupils you have taught.
(b) To equip pupils with the necessary basic skills to make a success of life.
(c) To produce people of good character and sound judgement.
(d) To equip young people with the secrets of successful living.
(e) To teach people to think for themselves.
(f) To produce young people who will be a credit to their school.
(g) To produce citizens capable of playing a useful and responsible part in the progress of their country.
(h) To become famous.
(i) To find enjoyment.

6. The following are the seven laws that Kurt Hahn proposed for giving a full education to the schoolchild. They are used in the school he founded at Gordonstoun in Scotland and in the curriculum of the 'Outward Bound' schools throughout the world. Discuss these seven laws and suggest how they might be employed in the kind of school in which you will teach.

(a) Give children opportunity for self-discovery.
(b) Make them meet with triumph and defeat.
(c) Give them opportunity for self-effacement in a common cause.
(d) Provide periods of silence for contemplation and for fostering the intellectual life.
(e) Train the child's imagination.
(f) Make games important but not predominant.
(g) Free the sons of the rich and powerful from the enervating sense of privilege.

WHAT IS MAN?

1. The following slogans are commonly heard throughout the world. Consider what the philosophical assumptions are that lie behind each and how they can be applied to education. (E.g. Freedom of speech assumes that freedom is a good thing, that each person has a right to it and that society can benefit from it.)

Independence!
Freedom of speech!
A strong opposition!
Equal opportunities for all!
Live and let live!
Pan-Africa!
Fight for your rights!
Uphold the dignity of man!

2. Discuss or debate the following assertions and discover the educational implications behind each.

(a) 'The rationalist, by ignoring the spiritual world, looks at his world as in a mirror and always sees himself as he appears to himself. Those who open their view of man and his world to the revelation of God, look no longer through mirrors but through windows.'
(b) 'If we reject the divinely given clues as to the nature and destiny of man we become entangled in the network of our own investigations.'
(c) 'Our present pre-occupation today is freedom, but when we talk about freedom we usually mean freedom from something. Political freedom means freedom from government; freedom of the press is freedom from censorship; freedom of thought is freedom from thinking; freedom of speech is freedom from responsibility; freedom of religion is freedom from religion.'
(d) 'The state that takes from its citizens their service and labour and does not give freedom in return is devouring its people like the moth in the flame. Such a state is not a community. A real community only exists where there is a mutual relationship of respect between the individual and the state.'

3. Find examples from newspapers of news which implies that the following philosophical concepts of man are widely held and that incidents become news when these concepts are broken.

(a) Men have a right to national and individual freedom.
(b) Men should be equal.
(c) Men know what is good and what is evil and should avoid evil.
(d) Happiness is enjoyed only when men do good.
(e) A democracy is a superior type of society to a dictatorship.
(f) Love is the highest relationship that can exist between individuals.
(g) Laws are a social necessity because of man's natural tendency to satisfy self-interests first.
(h) Fulfilling one's duty should be as compelling a force as seeking one's own pleasure.

4. Give examples of rationalist views held by religious people which contradict the divine teaching of their religion. Give examples of religious feelings felt or expressed by rationalists which contradict a purely rationalist philosophy.

WHAT IS TRUTH?

1. Find examples from your own experience (or from anthropological studies such as are contained in the book *Strange People* by A. Block) of people whose values, standards and concepts or truth

differ in a marked way from your own. Then answer the following questions:

(a) From where does a people get its standards and values?
(b) What factors bring about changes in the standards and values of a people?
(c) On what grounds has one people the right to say that its standards and values are superior to those of another?
(d) Can one speak of 'advanced' ethical standards in the same way as 'advanced technology' and assume that they are necessarily superior to less advanced ethics or technology?
(e) Is there any difference between the rationalist who believes what he likes and the religious person whose creed is what he makes it?

2. There are many different kinds of art, such as literature, music, drama, painting, sculpture, film-making and so on. Read the following quotation and answer the questions that follow:

> 'True art has a timeless quality; it does not grow old or go out of fashion. It has a depth to it that allows prolonged contemplation, bringing with it inspiration and exaltation. True art is food for the intellect and brings forth healthy growth of the mind. Anything that falls short of this is not art whatever it may popularly be called.'

(a) Is the popularity of certain types of art clear proof that they are good? Discuss this in relation to highly popular forms of art such as jazz, highlife, detective literature, so-called modern art and so forth.
(b) Is the fact that the majority of people like a certain kind of art or hold certain views about it proof that they are right?
Is the majority always right?
(c) What is it that makes you like your favourite kinds of art? Are your ideas of beauty and quality in art entirely of your own making or is there an absolute and universal element in them?
(d) Discuss the quotation above and say to what extent you agree or disagree with it.
(e) How do you account for the popularity of books, music, painting and so forth which do not have the marks of true art as suggested in the above quotation?

3. 'What I think is my belief and my belief is my faith.' This quotation unites the rationalist and those who claim no religious faith with those holding deep religious conviction. Answer the following questions honestly from your own faith or standpoint and see if they reflect the consistency demanded of truth discussed on page 373 and provide a satisfactory philosophy of education. If the Holy Scriptures of your faith provide a God-given authoritative answer, quote them.

(a) How does man differ essentially from animals?
(b) Is human nature prone to do good or prone to do evil?

(c) Can man change his own nature?
(d) How do you account for the fact that men sometimes break laws that they acknowledge are good laws?
(e) What is the purpose of man's existence?
(f) Is individual freedom and the equality of individuals compatible with the existence of families, tribes, nations and races?
(g) What right have some men to rule others?
(h) What right have some men to teach others?
(i) What is the most valuable thing that a man can possess?
(j) What is the most important lesson a man can learn?

For Further Reading

B. A. FLETCHER.	*A Philosophy for the Teacher.*	O.U.P.
M. V. C. JEFFREYS.	*Glaucon, An Enquiry into the Aims of Education.*	Pitman.
J. S. ROSS.	*Groundwork of Educational Theory.*	Harrap.
A. BLOCK.	*Strange People.*	Harrap.

20. TASKS FOR EDUCATION

Section A

GETTING ORIENTATED

If we ask different kinds of people what they think education should do for a child we will be surprised and perhaps confused by the diversity of their answers and the conflicting aims expressed. Employers tend to look for skills and character, politicians for numbers and gratifying statistics, religious leaders for spiritual quality while parents are content only with success.

If we ask them what is wrong with education some will point to the schools, some to the curriculum and some will accuse the teachers who, no doubt, will pass the blame on to the children and 'this modern generation'. Most people have plenty to say about education and are willing to offer opinions on what should be done but few venture to say why. Public opinion is notoriously short-sighted; this makes it all the more important for the teacher to sit down and think what his real task is and why it needs to be done. He needs to be critical, not only of what others have to say about education, but of himself, his aims and his motives.

The practical aims of education can best be expressed as a series of tasks which must be fulfilled. They cannot be accomplished overnight. They will take time, for they are not immediate goals. Rather, they are tasks which give meaning to the vast amount of machinery that has been built up in the name of education and is being so widely misused.

When these tasks are tackled with understanding, they give purpose to the energy of those thousands of men and women who have chosen a career in teaching but find themselves floundering in insecurity and indecision when they stop to think what it is all about.

These tasks are not the ultimate goal of education, for that is, of necessity, truth itself; this, each person must find for himself. Rather, they are signposts on the way, planted to point to the purpose of education and keep the wanderer from straying too far. These tasks are described in what follows:

PASSING ON THE HERITAGE OF THE PAST

When a child is born, he begins a new, personal existence, but he also joins an old established society. One of the tasks of education is to pass on to him the knowledge and experience of that society. The accumulation of this knowledge is very great.

The child who finishes secondary schooling today knows more general science than Newton did and more geography than Columbus. He can learn more in school about the atom or the aeroplane than his grandfather could have learned at a university. In a few years at school he learns the mathematics that has taken man some thousands of years to develop. If he becomes a scientist he will have the unusual experience of knowing that his generation of scientists comprise 90 per cent of all the scientists who have ever lived. Indeed, with ever-developing techniques in preparation for space travel and colonization of other planets, we as teachers may be teaching the last generation of children who are wholly earthbound.

But the child is deeply indebted to past generations for all these discoveries and the accumulated experience that have been handed down to him. Civilization as we know it, would cease to exist if ever the heritage of the past were withheld from the present.

This heritage is not only national, but international, and it concerns not only the present but the future. In the past this heritage was passed on through the family or by contact between individuals. Today the increased quantity of knowledge and greater numbers of people acquiring it require a school system of education. Who knows whether this will meet the needs of the future? Education must meet the needs of the present yet keep its eye always on the future. 'Education for today' is a maxim which has deep undertones of meaning.

There is therefore no ideal type of education suitable for all time. It is always a tragedy when a form of education developed for a place and time in the past is used somewhere else in the present. Examples of this are found in some parts of Africa, where a European pattern of school and curriculum are followed in a way which makes them quite inappropriate to Africa and the modern scene. Children educated in this way find it difficult to be assimilated into the community, whether we are thinking of the local community or the nation as a whole. Inevitably, if they are to be fully integrated with their own community, they must make adjustments at the points where their education failed to have relevance to the needs and aspirations of their community.

Throughout the world, education must achieve a reintegration of the schoolchild with his community, otherwise the disintegration of the community is bound to follow. But it can only happen if what is taught has relevance to the community and if the child, throughout his education, is constantly made to feel himself a part of the community. Obviously these requirements will necessitate some rethinking concerning the curriculum and the organization of many schools.

Passing on the heritage of the past assumes that we are anticipating a future, which in turn assumes that we can survive. Some civilizations of the past have been completely extinguished through war, famine or disease. Education thus has a task which is a prerequisite to passing on the heritage of the past—that is, teaching the young how to live in the future generation in which they will be adults.

PREPARING FOR THE FUTURE

In the most primitive state, man's whole preoccupation is concerned with keeping alive. This involves doing the right thing by his god, his family and his work. The correct sacrifices must be offered lest the anger of his god should destroy him. This is tied up with his fear of human and natural enemies which constantly endanger his life. The duties and the relationships within the family must be accepted by all its members because the family is dependent on itself as a unit for survival. To avoid starvation, the man must become a master of the skills required to obtain his food whether it be through hunting or farming.

This pattern of religious, social and breadwinning activities is repeated in modern society, but is immensely more complicated. It is not possible for every man to know everything. Specialization becomes necessary. Thus we have priests and those engaged full time in the religious aspects of life. We have soldiers to protect us from human enemies, doctors to protect us from disease and so forth. We no longer supply our food entirely from what we grow; instead we sell our labour and buy our food with the proceeds. Breadwinning therefore depends on our having skill in the kinds of labour which are needed by the community. It is possible for you to be a graduate of a university, but if what you have to offer the community is not what it wants, you will surely starve to death unless you are prepared to adapt or move to another community that can use your skills.

To prepare children for living in the modern world, the school must provide something of the threefold quality of ancient education, but apply it to the specialization of our times.

The merits of each emphasis can be debated, though many people believe that schools ought not to specialize but teach each with equal emphasis. Certainly in the primary school it would be a mistake to specialize. Good living must be presented as a harmony of the spirit, the mind and the body. Healthy habits of conduct must be instilled, worthwhile skills taught and healthy activity of the mind encouraged, not just so that the children may be prepared for earning a living or for exercising their intellect, but rather for coping with the problems of the community of which they will soon find themselves adult members.

PUTTING PURPOSE INTO LIFE

For many people, both young and old, life is without any real purpose. Routine tasks are repeated day after day. They meet and work with the same people. They talk about the same things. The pattern of life is repetitive and colourless. Consequently they seek to escape from it and they do so in various ways. Their trouble is that they see nothing in the purpose of life that they value greatly or feel is worth striving for. Thus the adding of knowledge, instead of bringing greater satisfaction, brings increasing frustration because it serves no purpose.

The modern world has no single embracing view of life. Knowledge is studied in the watertight compartments of subjects; scholars learn more and more about less and less. Man himself ceases to be an individual with a destiny and becomes an organism with an anatomy and a mind with complexes.

The more complete this divorce becomes between life and destiny, knowledge and purpose, what and why, the more difficult it becomes to achieve a reconciliation between them. But if education means anything, such a reconciliation must be made and the obvious place for it to start is in the hearts of teachers, from the lowliest primary school teachers to the leading university professors.

The problem is intimately related to what we considered in the last chapter on education and philosophy. But our thoughts on these must not end merely in a mental exercise; they must end in a philosophy of life which we hold firmly because it gives a satisfying purpose for all we learn and do. Maybe we will call it duty, maybe pleasure, maybe something else, but it will keep us from living lives that are aimless and will help us to show the children we teach that our labours in teaching them and their efforts in learning are for a better purpose than making them skilled in mental gymnastics; for they will, in fact, help them to become men and women of real understanding.

Without a philosophy of education you will be swayed by the most recent fashions in teaching and become absorbed with the means to the end more than the end itself. You will fail to convince your children that life has purpose and education is worthwhile. Unless you succeed in making the education you provide something that influences the very life of the child, you may well have the bitter disappointment of seeing your children throw off their 'education' like an unwanted garment when they leave school, and you may well ask yourself then, thinking of all your wasted effort, 'Was it worth it?'

Section B

GETTING ORIENTATED

1. Read the following passages that have been written about the views held by various kinds of people on what they expect of education and answer the questions that follow each:

> (A) 'Probably the most fundamental problem in regard to education is the attitude of parents which makes their co-operation and understanding difficult to secure, particularly in rural schools. This arises from a variety of causes, chiefly ignorance, poverty or extensive family responsibilities. Although the proportion of pupils from educated homes is on the increase, the majority of schoolchildren still come from comparatively poor and often non-literate homes where education is regarded as a sound investment so long as it brings academic success which qualifies them for well-paid employment, and where the young 'scholar' receives a great deal more prestige than is good for him.
>
> 'Such parents cannot be blamed for their materialistic interpretation of education as they have few criteria by which to assess the true value of their children's education for life in a world which may well be outside their experience.
>
> 'Unfortunately many pupils have a conception of education which makes

them mercenary, materialistic and complacent and they tend to think that possession of a School Certificate entitles them to believe that the world owes them a living.

'The acute shortage of properly qualified teachers has created a demand for their services which has led to many of them adopting a mercenary attitude to their profession which can do nothing but harm to any school in which they serve. Their attitude seems to be that they should do the minimum amount of work in the classroom and none at all outside it without extra allowances or "overtime pay". Refusal of privileges and perquisites demanded is met with threats of resignation which are frequently carried out without a thought for the welfare of the pupils or their obligations to their schools, in the sure knowledge that they can readily secure another appointment. Desperate proprietors find themselves obliged to accept this attitude and to grant unjustifiable privileges in order to retain the services of those for whom they know they cannot find suitable replacements.'

From an Address given by Chief the Honourable J. A. O. J. Odebiyi to the Thirtieth Annual Conference of Principals at Ibadan in 1956.

Questions

(a) Paragraphs 1 and 2 deal with the attitudes of parents to education. Do you agree that these attitudes are widespread?

(b) The writer states three main causes for the lack of understanding among parents on the purpose of education. What suggestions would you make for overcoming the bad effects these have on the outlook of parents?

(c) Is it bad for a parent to regard the education of his child as an investment? Why?

(d) Who is mainly responsible, do you think, for the over-exalted view taken of school certificates? Is it parents, pupils, teachers, employers or the government? Discuss how you think this state of affairs has come about.

(e) Paragraph 3 deals with the attitudes of many children to education. Do you think there is anything in the schools themselves or in the teachers that encourages children to become materialistic?

(f) Does the world owe any pupil a living?

(g) What measures would you suggest might help children to get a balanced view of themselves and the purpose of education?

(h) Paragraph 4 deals with the attitudes of some teachers to education. Does the picture it describes corrrespond to what you know of teachers?

(i) What things mentioned, concerning teachers, would you agree are harmful? What workable solution would you offer for each of them?

(j) What do you consider are the rights of a teacher? Should a teacher always insist on these? Explain your answer.

(B) 'Fourteen years ago, the writer circularized a very wide cross-section of employers in Jamaica and inquired whether they were satisfied with the Cambridge School Certificate as a passport to employment. Almost every reply was in the negative.

'They were all asked to state in what ways, if at all, the average school leaver was unsatisfactory as an employee. In many cases, this question gave rise to some searching and revealing criticisms of the young school product, outstanding among which was the observation that he seemed to think that, because he had passed an external examination in subjects which had little or no relevance to his present work, his attitude was that he had little or nothing to learn and that, in brief, the world owed him a living.

'Equally interesting were the replies to that section of the questionnaire which invited employers to name those qualities which they valued most in their employees. They included loyalty, industry, a sense of responsibility, courtesy, a spirit of service, integrity, leadership, initiative, sociability, common sense, stability, punctuality, concern for others, and in fact, practically all the qualities which guest speakers extol on speech days, prize givings and other public occasions.'

From an article entitled 'Certificates and Education' by J. R. Bunting which appeared in the *West African Journal of Education*, October, 1958.

Questions

(a) This article, which deals with the attitude of employers to education, raises the matter of a certificate being the only means (and that an unsatisfactory one) by which an employer can quickly assess the ability of an applicant for a job. Suggest other practical measures that might be introduced which would help employers to get a more accurate idea of the real worth of each applicant.

(b) Rewrite the list of qualities in employees which employers value most in the order in which you would place them if you were an employer.

(c) What provision does the normal school make for teaching the qualities sought by employers?

(C) 'Modern schools teach practically nothing about the real meaning of life or of the significance of national and world events. Children therefore go through life blindfold, knowing virtually nothing except how to make a living and enjoy themselves in an increasingly wretched sort of way.

'Much of our delinquency does not come from slum areas. It comes from children who are trying to find something to do. They are inventing a way of life for themselves. We have failed completely to teach children to think.

'In a majority of cases they are given the definite statements or impressions that there is no real God. Therefore it follows logically that there is no real standard of values in human behaviour. Everything is relative. It depends upon human opinion because there is no God to set a standard or state any real purpose in life.'

From an article entitled 'True Education at Ambassador College' by R. C. Meredith which appeared in the *Plain Truth*, April, 1962.

Questions

(a) This article deals with the views of a religious person on what education should do. It deals with the subject mainly by saying what is wrong with present-day education. Make a list of what the writer would like schools to do by putting each point in a positive instead of negative form.

(b) Do you agree that delinquency is the mark of children who are bored with life? If so, what help can religious training and the emphasis given by the author on teaching children to think about the real meaning of life have on the behaviour of children?

(c) The accusations of the writer are against American schools and people in America. Do you think they apply to the schools and people of your country?

2. Discuss the conflicting views on education held by different members of the public as represented in the extracts above. Suggest ways in which the general public can be educated to a deeper understanding of the purpose of education and how a greater harmony can be encouraged between schools and the various elements of the public. Would the curriculum and organization of present-day primary schools have to be modified to make this possible?

PASSING ON THE HERITAGE OF THE PAST

1. Make a list of ten inventions or discoveries that have been made in your lifetime. What heritage from the past did these inventors or discoverers call upon which helped them in their tasks?

2. Make a list of the things which you learned in primary school which you consider are of value to you today.

3. What links with the past and the future must necessarily be included in fulfilling the maxim 'Education for today'.

4. What features of schools you have known would you classify as inappropriate for your country at this time?

5. Discuss the problem of integrating the school and the community especially in rural areas where the community is often more backward than elsewhere in the country.

6. Make a list of the features of the community to which you belong which you would like to see fully incorporated with the school system in your locality and suggest practical ways in which this might be done.

PREPARING FOR THE FUTURE

1. One of the main reasons why John Dewey set up his special 'Laboratory' in America at the end of last century was in reaction to the growing specialization that the industrial revolution had brought to society. Thus, by facing his children with practical

problems which they tackled as a team, he reintroduced the broad challenge that life had made upon their forefathers and caught something of the team spirit that their forefathers enjoyed in hunting, farming or activities beyond the reach of the individual. It was this practice that gave rise to the 'project method'.

Do you think over-specialization and a growing divorce between education and the community are problems in your country? If so, how can children be trained to meet these problems when they leave school?

2. Many schoolchildren, who cannot go on to secondary or other post-primary education, become greatly disillusioned when they leave school and cannot find a job. Discuss this problem and try to apportion the responsibility which the school, the child and the community must bear for contributing to this problem.

3. Make a list of the features of character, social qualities and practical skills that you reckon are necessary for making a success of life in your community. How many of these are given a place in the education provided by schools in your area? Suggest practical means by which those not catered for could be successfully taught in the schools.

PUTTING PURPOSE INTO LIFE

1. How many of the following things do you consider are symptoms of the frustration people feel in a life that seems to be leading nowhere in particular?

Strikes.
Drunkenness.
Delinquency and crime.
Mental sickness (neurosis).
Stomach trouble (ulcers).
Bribery and corruption.
Drug addiction (heroin, etc.).
Gambling.
Pleasure seeking.
Increase in divorce.
Adultery and fornication.
Increasing demands for social securities.

2. What is the purpose of specialist studies and what place should they have in relation to man's search for truth?

3. Suggest ways in which the strict compartmentalizing of subjects can be lessened in the primary school so that knowledge learned at school has greater relevance to the life the children will experience when they leave school.

4. Consider the picture illustrated in fig 102. In it, the island represents ideal society, the sea—life as it is, the rocks—social opposition, the paddlers in the canoe—pupils, and the helmsman—

Fig 102. An aim for education

the teacher. How many points in it can you see directly and by implication that make it a good analogy of what education should try to do? In what respects is this analogy inadequate?

5. In what way do each of the following aims of education fall short?

(a) To get success in examinations.
(b) To equip the child to earn a living.
(c) To make a 'man' of the child.
(d) To equip the country with the skilled man-power it needs.
(e) To train 'tomorrow's leaders'.
(f) To produce a literate population.

6. Comment on the following statements which reflect differently expressed purposes of education:

(a) 'Today, technology has reached unprecedented levels of excellence, but spiritual understanding is at its lowest ebb. Progress, the one without the other is impossible, for real progress is a moving towards an object. Technology by itself cannot do this, it cannot determine the goal; it can only help us to get there once the goal has been sighted. Therefore our greatest need today is for a stocktaking of where our technology is taking us and a spiritual awakening so that we might harness the mighty power that we have created and marry the two.'

(b) 'Man's chief end is to glorify God and to enjoy Him for ever.'

(c) 'Education must always be in the hands of the government for it is education that teaches the nation to think and it must always be the prerogative of the government to decide what the nation thinks.'

(d) 'Education must lead to independence of belief, thought and action. Any teaching that causes a child to believe something, think after the manner of his teacher or act always in the way he has been taught, is not education but habit training. The only habit which the child should be allowed to form is to learn no habits at all.'

For Further Reading

R. R. RUSK.	*Doctrines of the Great Educators.*	MacMillan.
S. J. CURTIS.	*A Short History of Educational Ideas.*	University Tutorial Press.
G. P. KELLAWAY.	*Purposeful Education.*	University of London Press.

21. THE MEANS TO THE END

Section A

THE EDUCATION MACHINE

An analysis of aims and purpose in education finally comes down to the question 'What is the task and what are our methods to be?' Deciding what the task really consists of is a vital necessity if education is to be of any value. But this decision must be made in the heart of the individual. If it is any less deep, its directing force is negligible.

Whether we like it or not, the means to the end has not been left for us to choose. It is all prepared for us like some mammoth education machine. We have inherited and become part of this huge system whose thousands of schools are linked by a vast network of administration. Law has required that in these schools the children must be divided into classes and be taught certain subjects following approved syllabuses. The lives of the teachers and the children, so long as they are in school, are dictated by the time table and the bells that begin and end its periods. There are examinations and certificates, primary schools and secondary schools, headmasters and specialists and all the paraphernalia of the educational system. This is the education machine and it is organized from the top down. The general public accepts not only that it is the best way for providing education, but that it is the only way. We need to ask ourselves if this is quite true.

Educational experiments in a number of countries are beginning to suggest that knowledge can be imparted better by other means than the traditional pattern of lessons which last for thirty to forty minutes and that the role of the teacher and the character of schools may change considerably in the future. But for the present we must do the best we can with the education machine as it is and make only those modifications which help it to do the very best job it can.

SCHOOLS

Education and schools are so closely linked in the mind of the average person that the one is unthinkable without the other. Yet even today, only a small proportion of the world's population attends school; two hundred years ago it was much less even in those countries which today we call advanced. Many of the ablest leaders among the emergent countries have received relatively little formal education. Some of those in the older countries have received formal education only to the age of fourteen. Very few have university degrees. In former times, many of those who took their place as rulers never attended any school at all.

This raises the question, 'Are schools necessary?' We can only answer that they became necessary when there arose a demand for formal education. The laws of those countries which have made education compulsory and the recent dramatic increase in demand for formal education in Africa have made some form of collective teaching a necessity.

But schools themselves are not necessarily the final answer. They are an expediency. They are to education what the factory was to local craft industries—merely a means of increasing production figures—and, like the industrial revolution, they have brought many social and technical problems in their wake. Who knows but that with mass means of communication like radio and television at our disposal, it may become possible to take education back into the home, or at least more into the community than is the case at present.

In the meantime, we must make schools as effective and efficient as they can be. To do so, we must understand their character, their potentials and their weaknesses.

What is the best size for a school? What is the best system of administering schools? How can school buildings be made to help the teachers? These and many other questions need to be answered before we can get efficient and effective schools, but the following principles will help you to see the problem.

1. Economically it is cheaper to run a big school than a small one. Since, in the modern world, economics tends to dominate all development, it is likely that big schools will become increasingly common and small schools may eventually disappear. But if big schools are to serve their true educational purpose, somehow they will have to be made to seem like little schools.

2. Technically, a big school is more efficient in its use of staff because it can attract more specialists and use them more fully than a small school.

3. Socially, a small school provides a better educational environment because its links with the community outside the school are usually stronger than a big school which makes a community of its own. Also the relationships within a small school are more intimate and personal than in a big school. This is an important difference because close personal relationships are an essential feature of good primary education.

TEACHERS

Just as schools are commonly accepted as a necessary part of education, so too is the teaching profession. But it too, as an important social service, is a comparatively recent innovation. Teachers have existed of course from earliest times but the *pedagogues* of old would have been not a little surprised to see what a big business their profession had developed into. Many of them were self-appointed, unpaid or supplied by their employers with only their most urgent needs and enjoyed nothing of the protection supplied by Teachers' Unions.

Parents are the earliest form of teachers known to education and still survive as the most important teachers in society. But professional teachers in all the emergent countries are rapidly increasing in number though they fall far short of the needs. Even in the old-established nations, teacher shortages are a perennial problem. In consequence of the inadequate supply of new teachers from the training colleges, practising teachers nearly always find themselves overworked. Frequently, however, they fail to make the best use of their energies. Anything that helps a child to learn is its teacher and it is well for the weary professional teacher to remember this in relation to aids and methods.

In early times, teachers were sought out by eager learners. Socrates did not have to look for pupils. The disciples of Jesus did not stay with Him because they had paid their fees and wanted their money's worth. The father who reckons his son is ready to begin to learn the skills of hunting does not say, 'Today you must come with me; I command it.' No, the child has long been awaiting his father's permission for him to join in the hunt.

Today the relationship between teachers and pupils is often upside down. Pupils come because they must and teachers teach because they are paid to. Teachers mourn that their profession is not respected and complain that they are inadequately paid for the duties they are required to do. They look over their shoulders at other professions and conditions of service and sigh for a better life.

The demand for teachers is so enormous that responsible authorities have provided a vast network of Training Colleges to meet it. Even with these, however, the proportion of trained teachers in some countries is only 25 per cent, and this includes many with a most inadequate training. There is a danger that the inadequate standards of 'emergency' training will become the accepted norm in order that the percentage of trained teachers in graphs of educational statistics may rise. The trained teachers will be produced, but will they be of the kind needed? Those responsible for the supply of trained teachers must look beyond the statistical graph to the real needs of the schools.

All who have a vital interest in education should think again both about the purpose of education and the means of supplying the right kind of teachers in the right numbers. If teachers are to do their job properly they must come like the great teachers of the past with the fire of conviction that what they have to teach is important; and they must come with the loving attitude of a father to his children. They must possess the knowledge and skill of the scientist but apply their knowledge with the sensitiveness and feeling of the artist.

These things can hardly be achieved by the young teacher, impatient to get quick results. They must grow into him. His aims and his convictions will only develop as he gives time to think on them. His relationships with his pupils will not immediately be close and harmonious. He must work for this relationship by proving his concern for his pupils and not just their work. He must win from them their natural eagerness to learn and direct it not just to those things that interest them but to those things that are important. He must remain himself a pupil, ever learning more about his work, so that the artist in him need no longer consciously concentrate on the materials and the techniques he uses, but is freed to attend to the more worthwhile task of painting the finished picture.

As teachers we cannot escape the responsibility of presenting to boys and girls the best and truest things we know according to our lights. But we must do our constant best to see that our light is not darkness.

CHILDREN

We often hear disparaging remarks about 'the younger generation' which imply that there has been a deterioration in their standards of behaviour. But too often, people fail to see that each generation is the product of the last. When standards are upheld it is because the older generation has proved to the younger that these are worthwhile and desirable and because it has succeeded in making these standards part of the life of the younger generation. When standards change it is because the older generation has failed to convince the younger of their value. Social standards do not change by themselves. They are discarded by dissatisfied people.

This may happen because the older generation has not lived up to the standards it claims to; or the older generation may have tried to coerce the younger into habits without passing on their meaning. Initially, the older generation is itself good enough reason—'It was good enough for father'—but it breeds a younger generation wholly dependent on the older for its lead. Ultimately, when the old has passed away, disillusionment follows and these standards collapse because they were never fully appropriated by the younger.

Valuable work has been done in the study of children, but like so much in modern science, the detailed examination has been done in isolation. The child has been studied in his learning, playing, growing, behaving, acting and reacting. But he has come out of this analytical study rather like a dissected frog. There is need for work to be done to integrate the separate studies and relate them to the real purpose of man's existence. Much of modern research is like a man who goes into the market to look for a lamp that he needs, but becomes so interested in examining the clothes, foodstuffs and other things on display that he forgets what he went in to buy.

Children are not small adults, nor are they specimens for examination. They are individuals and yet part of society. They have independent existence but they are part of the life of their community. Only when we see children with this whole view can we effectively tackle the main tasks of education.

THE CURRICULUM

In schools, custom has ordained a curriculum of different subjects and expediency has developed a technique of giving fair shares to all through lesson periods and a time table. Thus teachers are to a large extent bound to the curriculum and few are brave enough to teach anything beyond the demands of the curriculum and its syllabuses.

Most teachers accept the curriculum without question like a legal code which may not be broken. All too few stop to think why they are teaching the various subjects of the curriculum. Thus when a child asks without warning a question like 'What is the use of poetry?' they have no real answer. As often as not the answer they give is a rationalized one carrying little conviction.

If the curriculum is to serve its real purpose, it must assist the pupil to see the value of the past in relation to the present and the future; it must equip the child with the necessary skills for modern living; and it must help to keep the child a fully integrated member of his community. It is well worth asking if the curriculum followed in most schools does this. In countries which have recently won independence there is a particular need to go through the whole school curriculum and replan it, so that it may be in line with current needs and aspirations.

Why have indigenous arts been so long ignored? For culture, we see our children served up with a menu of European arts that, more often than not, has been ill chosen. In arithmetic they have faithfully calculated the amount of wallpaper needed for bedrooms, lounges and dining-rooms even though they have never seen wallpaper. They have obediently measured in pints and quarts even though their own measures are cigarette tins and bottles. They have worked costs to the last farthing even though their coinage has not included such a unit. We sometimes see in the market unschooled traders who can tell in a flash the cost of eight torch batteries at 7½d each while the schoolboy pulls out his paper and pencil and laboriously works it out.

In rural science, the child has been taught 'new ways' and 'improved techniques' but he may never have been told what was good about his father's farm or the methods that had supported his people for generations.

In geography, children can talk glibly about denudation, trade winds and primary producing countries yet pass daily and do not notice the widening gully below their village or seek with unreasoned optimism a post as clerk in one of the overstaffed offices in the big towns.

TEACHING METHODS

Teaching methods are the feature of education that has altered most during the present century. Schools, teachers and curricula have altered somewhat, it is true, but methods—or perhaps as we should say the choice of methods—have multiplied enormously.

Just as research in science and industry has produced better and quicker methods of doing things, so in education, research has pointed to more efficient techniques for teaching. This carries dangers with it; there is no value in having efficient techniques if what you are teaching is worthless. This fact is pointed out in Sir Eric Ashby's report on Higher Education in Nigeria when he says of uninformed teachers provided with modern aids to teaching: 'The result can only be the more effective spread of ignorance.'

This reference is to the inadequate knowledge of subject matter amongst teachers. But it is of wider significance if related to the ill effects of efficient teaching of a curriculum out of touch with reality.

It is important therefore for the teacher first to reasure himself of his main objects in teaching and, after that, to consider the value of the content of his teaching. Only then should he turn his attention to the methods.

The teacher should also distinguish between *giving children experience* and *causing them to learn*. An experience is when we grasp some principle and see it demonstrated in its various applications so that it becomes part of us. The result is an exhilaration of understanding that is truly educational. On the other hand, facts may be learnt, and conclusions filed away in the mind, without ever becoming an integral part of us like experience. It may be easier for children to learn in this way, but facts and conclusions so learnt are of much less value than experience.

Teaching methods must be tried before their worth can be proved. They must be given a fair trial. Too many teachers 'have a shot' at this method and 'have a go' at that, and end by rejecting them all, claiming they do not work. This is not a fair trial. Young teachers straight from college are notorious for trying out all their 'new-fangled' ideas. Older teachers, when they see the methods failing in a confusion of activity, retort 'We told you so!'

If teaching methods with which a teacher is not familiar are to be given a fair chance, they must be introduced in a small way at first and developed as experience brings greater confidence. There is nothing to be gained in adopting them in a mad orgy of enthusiasm.

They are best tackled one at a time, too. Some teachers become swamped in a mass of new activities with little chance of survival, far less of success. At the same time it is good to have a sound reason for changing to a new method. It is foolish to change from an efficient and successful method to another of unknown possibilities just because it is fashionable.

The same principles apply to the use of new teaching aids. Some teachers become crazed with gadgets. They turn nearly every lesson into a flannelgraph lesson or a tape recorder lesson or a filmstrip lesson until their children become thoroughly tired of them. A little of what you like is good for you but too much makes you sick.

Section B

THE EDUCATION MACHINE

1. What are the educational assumptions inherent in the following types of institution? Discuss these assumptions in each case. (E.g. Before an adult literacy class is started, it is assumed that literacy is desirable and important enough for public money to be spent on it and that it is sufficiently valuable to adults for them to give up some of their own time to it. It is also assumed that adults are still capable of learning and that organized classes are the most practical means of teaching them.)

Adult literacy class.
Agricultural college.
Army training school.
Blind school.
Commercial college.
Community school.
Craft school.
Government school.
Grammar school.
Koranic school.
Leadership Training Centre (also known as Outward Bound School).
Local Education Authority School.
Modern School (as applied to a 3-year post primary school).
Police training college.
Prisons.
Teacher training college.
Technical school.
Theological college.
University.
Voluntary agency or independent school.
Women's vocational class.

2. Discuss the 'education machine' as it exists in your country, bringing out the variety of education provided, the degree of government control exercised and who pays for it.

Finally hold a mock trial for the 'education machine' with a judge, counsel for the prosecution and the defence, a few witnesses and the rest of your class acting as the jury. Make the charge 'The education machine, as a servant of society, has exercised too much control over society and is worthy of a period of corrective training'.

3. Comment on the following assertion in relation to a State-owned educational system:

> 'I deny the right of the state to do everything for everyone, leaving the people with no more choice, initiative, or freedom than domestic animals. The individual is bound to do more for himself, his family and his community if allowed reasonable freedom to plan and make his own improvements.'

SCHOOLS

1. Read the following passage and answer the questions based on it:

> 'Possibly the greatest advantage of a good single-teacher rural school is the family atmosphere arising from a situation where a group of children whose ages range from five to eleven all work together in one small room. In such a natural atmosphere the children are happy and very much at ease and, unless one subscribes to the view that there is nothing so conducive to learning as a healthy crackle of fear, a constant tingling tension, one must be grateful for this.
>
> 'Furthermore, in this atmosphere, the older ones develop a strong sense of responsibility towards the younger that is a joy to witness, especially if one has ever had any experience of trying to get the prefect system to work in some large school. In the first case, the sense of responsibility grows naturally out of the situation; in the second, the system that is supposed to embody this sense is imposed on the situation.
>
> 'We must also take into account the advantages to be gained from the environment itself—from the unique school, schoolhouse, village combination where the teacher is himself a member of the small close community. His knowledge of his pupils' home backgrounds and his natural contact with parents are of very great help in his work.
>
> 'In most lessons the teacher is forced to adopt an individual approach. By demanding that he work out an English scheme, not for class 3 but for Musa and Sussanah who *are* class 3, the effect is wholly excellent. It puts the teacher on his mettle as no system of inspection could ever do.
>
> 'Whereas the older children tend to suffer from the lack of a substantial number of companions of their own age, the infants definitely benefit from it. Their progress is much quicker. For example, they see the meaning and purpose of reading all around them as the older children make use of the skill in a variety of ways.

'Finally, it should be noted that only in the case of average and bright older children is the lack of numbers a disadvantage, for the atmosphere of keen competition denied the brighter children is something that the dull or backward can very well do without.'

Adapted from an article entitled 'The Dedicated and the Desiccated' by E. W. and D. Hildick, which appeared in the *Journal of Education*, February, 1958.

Questions

(a) What are the advantages, mentioned by the authors, of the one-teacher village school?
(b) Can you think of disadvantages?
(c) Why do you think such a school requires a capable and experienced teacher?
(d) Do one-teacher schools exist in your country?
(e) If such small village schools are replaced by the big town school, what features of the small school could be introduced into the big school? Suggest ways in which this could be done.

2. How does your Demonstration School seek to fulfil the following important functions?

(a) Teaching knowledge relevant to the pupils' need.
(b) Teaching skills that are useful to the children in every day life.
(c) Training character.
(d) Linking school life with that of the community.
(e) Encouraging friendly mixing amongst the older and younger pupils.
(f) Encouraging healthy living.

3. In what ways do the following school practices contribute to the education of the child?

Morning assembly.
School uniform.
School rules.
Prizes.
Clubs and societies.
The prefect system.
The house system.
Sports matches.
Homework.
Holidays.

What other things, apart from teaching, also contribute to the child's education in the school?

TEACHERS

1. Comment on or debate the following statements and accusations which have been directed against teachers:

(a) 'A country cannot have good teachers until it has good schools.'
(b) 'The pattern in many emergent countries is one of inadequately trained teachers turning out partially educated pupils.'

(c) 'Teaching is not to be counted with the professions; it is a social service. Teachers should not therefore seek greater acclamation than the railwayman or greater reward than the post office worker.'
(d) 'Teaching is more a science than an art.'
(e) 'The untrained teacher is a menace to education.'
(f) 'It is unfair that a man should be called a "quack" and be prosecuted by the state for practising medicine without proper qualifications and yet the same kind of man be called a pupil teacher and be paid by the state for practising teaching without proper qualifications.'
(g) 'The greatest danger to the teaching profession is not that it may become disgruntled, but that it may become complacent and uncritical of its standards.'
(h) 'It is ridiculous to claim professional status for an occupation which includes an unqualified boy or girl of fifteen alongside a graduate who has spent years in a university.'
(i) 'The high proportion of men to women teachers at the Primary level in Africa is not sound. If the ratio was reversed, the children might find a gentler atmosphere with more understanding.'
(j) 'Frequent transfers of teachers between schools and the heavy losses of trained teachers from the teaching profession to other kinds of work have contributed greatly to the low level of educational attainment throughout most of Africa.'
(k) 'Christian missions have only themselves to blame for teacher shortages created by their practice of disciplining teachers for moral lapses in behaviour.'

2. Consider the arguments for and against the use of specialist teachers at the primary school level.

3. Plan what you think a pupil finishing primary school needs in the way of further education and training before he is suitable to be a teacher in a primary school. Be specific as to the length of the course needed and the content of the curriculum. How closely does the teacher training programme in your country approach to your ideals?

4. In society there is often a conflict between the old and the young and between tradition and modern practice. Discuss this problem and suggest the part the teacher can play in the matter.

5. Comment on the following statements about children and their education. How can the teacher meet the challenge of each?

(a) 'Newspapers, cinema, television and the wide range of shoddy magazines constantly publicizing violence as the solution to all problems and sex as the most important element in life, make a good education almost impossible. The schools must lose a battle in which so many agencies influence the young in other directions.'
(b) 'I have tried to produce boys and girls who are quiet and well-mannered, who know how to study, who are not untouched by what they

have learned and who have gained a taste for the power of thought and work. These children love their school and will be grateful in years to come for what it has given them.'

(c) 'Educationists have lost the whole view of the child. His personal being has resolved into groups of factors, his growth into various processes. In this classification, children have lost their individual identity and become bright and dull, extrovert and introvert as though there was no significant variation within the type.'

(d) 'A child should be able to share with his parents the pleasures and difficulties of his everyday school life. For this, parents must have a real interest and pride in the school so that they provide an understanding and appreciative audience when their child describes his activities or future school events. Herein lies the most important function of the "Parent-Teacher Association".'

6. Discuss the purpose of a Parent-Teacher Association and suggest what activities will help in achieving that purpose.

7. Study carefully the following guiding principles prepared for teachers by the National Education Association of the United States and discuss each principle fully with your fellow students. Would it make a good guide for teachers in your country?

(a) *The First Principle—The Individual.*

The primary obligation of the teaching profession is to guide children, youths and adults in the pursuit of knowledge and skills, to prepare them in ways of democracy and to help them to become happy, useful, self-supporting citizens. The ultimate strength of the nation lies in the social responsibility, economic competence and moral strength of the individual.

In fulfilling the obligations of this first principle the teacher will:

(i) Deal justly and impartially with pupils regardless of their physical, mental, emotional, political, economic, social, racial or religious characteristics.
(ii) Recognize the differences among pupils and seek to meet their individual needs.
(iii) Encourage pupils to formulate and work for high individual goals in the development of their physical, intellectual, creative and spiritual endowments.
(iv) Aid pupils to develop an understanding and appreciation not only of the opportunities and benefits of democracy, but also of their obligations to it.
(v) Respect the right of every pupil to have confidential information about himself withheld except when its release is to authorized agencies or is required by law.
(vi) Accept no remuneration for tutoring except in accordance with approved policies of the governing board.

(b) *The Second Principle—The Home.*

The members of the teaching profession share with parents the task of shaping each pupil's purposes and acts towards socially acceptable ends. The effectiveness of many methods of teaching is dependent upon co-operative relationships within the home.

In fulfilling the obligations of this second principle, the teacher will:

(i) Respect the basic responsibility of parents for their children.
(ii) Seek to establish friendly and co-operative relationships with the home.
(iii) Help to increase the pupil's confidence in his own home and avoid disparaging remarks which undermine that confidence.
(iv) Provide parents with information that will serve the best interests of their children, and be discreet with information received from parents.
(v) Keep parents informed about the progress of their children as interpreted in terms of the purposes of the school.

(c) *The Third Principle—The Community.*

The teaching profession occupies a position of public trust involving not only the individual teacher's personal conduct, but also the interaction of the school and the community. Education is most effective when these many relationships operate in a friendly, co-operative and constructive manner.

In fulfilling the obligation of this third principle the teacher will:

(i) Adhere to any reasonable pattern of behaviour accepted by the community for professional persons.
(ii) Perform the duties of citizenship and participate in community activities with due consideration for his obligations to his pupils, his family and himself.
(iii) Discuss controversial issues from an objective point of view, thereby keeping his class free from partisan opinions.
(iv) Recognize that publicly supported schools belong to the people of the community, encourage lay participation in shaping the purpose of the school and strive to keep the public informed of the educational programme which is being provided.
(v) Respect the community in which he is employed and be loyal to the school system, community, region and nation.
(vi) Work to improve education in the community and to strengthen the community's moral, spiritual and intellectual life.

(d) *The Fourth Principle—Employment.*

The members of the teaching profession have inescapable obligations with respect to employment. These obligations are nearly always shared employer–employee responsibilities based upon mutual respect and good faith.

In fulfilling the obligations of the fourth principle, the teacher will:

(i) Conduct professional business through the proper channels.
(ii) Refrain from discussing confidential and official information with unauthorized persons.
(iii) Apply for employment on the basis of competence only, and avoid asking for a specific position known to be filled by another teacher.

(iv) Seek employment in a professional manner, avoiding such practices as the indiscriminate distribution of applications.

(v) Refuse to accept a position when a vacancy has been created through unprofessional activity or pending controversy over professional policy or the application of unjust personal practices and procedures.

(vi) Adhere to the conditions of the contract until service under it has been terminated by mutual consent or the contract has otherwise been legally terminated.

(vii) Give and expect due notice before a change of position is to be made.

(viii) Be fair in all recommendations that are given concerning the work of other teachers.

(ix) Accept no compensation from producers of instructional supplies when his recommendations affect the local purchase or use of such teaching aids.

(x) Engage in no gainful employment outside of his contract where the employment affects adversely his professional status or impairs his standing with pupils, associates and the community.

(xi) Co-operate in the development of the school policies and assume his professional obligations thereby incurred.

(xii) Accept his obligations to the employing board for maintaining a professional level of service.

(e) *The Fifth Principle—The Profession.*

The teaching profession is distinguished from many other occupations by the uniqueness and quality of the professional relationships among all teachers. Community support and respect are influenced by the standards of teachers and their attitudes towards teaching and other teachers.

In fulfilling the obligations of this fifth principle the teacher will:

(i) Deal with other members of the professions in the same manner as he himself wishes to be treated.

(ii) Stand by other teachers who have acted on his behalf and at his request.

(iii) Speak constructively of other teachers, but report honestly to responsible persons in matters involving the welfare of pupils, the school system and the profession.

(iv) Maintain active membership in professional organizations and through participation, strive to attain the objectives that justify such organized groups.

(v) Seek to make professional growth continuous by such procedures as study, research, travel, conferences and attendance at professional meetings.

(vi) Make the teaching profession so attractive in ideals and practices that sincere and able young people will want to enter it.

This extract was contained in the editorial of *The West African Journal of Education*, June, 1959. American spelling and terminology have been altered for the sake of clarity.

THE CURRICULUM

1. From the list of school subjects given below, group together those which have a major contribution to make to the following processes. Some subjects may appear in more than one group.

(a) Accumulation of useful information.
(b) Encouragement in independent thinking.
(c) Training in useful physical and mental skills.
(d) Appreciation for beauty.
(e) Character development
(f) Encouraging team work.
(g) Developing physical health and strength.

Reading.
Writing.
English.
Arithmetic.
Hygiene.
Religious Knowledge.
Art.
Handwork.
Music.
Poetry.
Rural Science.
Physical Education.
Geography.
History.
General Knowledge.

2. How can the school meet the need for such training as is not fully covered by the teaching of the subjects of the curriculum?

3. Discuss the following statements which concern the curriculum. Suggest ways of overcoming the bad features they imply.

(a) 'Freedom in religion must include freedom to reject it; but its rejection ought to be made in the knowledge of what it has to offer and not in ignorance of it.'

(b) 'Nature study and rural science lessons rarely set out to help the children understand why the local farmer is successful in producing good crops. The right things he does usually receive little explanation, while by implication, the fact that he does not properly rotate his crops or use fertilizer, for instance, stamps all his methods as wrong or at least inferior.'

(c) 'I believe there is good reason for the view that children do not benefit as they might from their education in reading and writing—that they acquire literacy without an appreciation of the uses of literacy.'

(d) 'What I oppose in the teaching of arithmetic are, first the fantastic number of hours spent by the hapless child in dreary calculations which kill any affection he might have for numbers; second, the belief that computation is good training for the mind; and third, the view that a child with no particular aptitude should be drilled into a capacity to handle vulgar fractions when he might instead be learning the significance of independence in his own country.'

(e) 'When I say I hated school, I mean I hated history, geography, English, arithmetic, art, craft, singing and games. The only thing I ever did like about school was getting out so that I could get on with learning the things I really wanted to.'

(f) 'Recent educational theory has tended to make 'education for life in a democracy' the primary purpose of schools. But the interpretation of this aim has been applied in a sense profoundly hostile to excellence in education. The result has been to skimp academic subjects, to lower standards and to confine and lower the whole educational process.'

(g) 'So-called educators in this generation have laid emphasis on "progressive education" which considers discipline psychologically harmful to the child; they have issued reports assessing merit in such terms as "integrates well" or "excels in group activities" instead of the traditional A, B, C, D markings. They have sponsored beauty queen contests and elections for "the boy most likely to succeed" and built up a system that adulates the sportsman to the neglect of the scholar.'

(h) 'The practical skills taught in school should be those that are educational and not just the crafts of the home taken over. Useful skills are not necessarily educationally important.'

(i) 'What I fear most in the education provided in so many schools is the intensely bookish approach. The children are removed from reality into a world of printed pages. Geography ceases to be the world outside and becomes chapters in a textbook. History turns from the thrilling reality of people living lives as they thought best and becomes a deadly list of events and dates. Unless education deals with reality, it is doomed.'

4. What evidences are there in the primary school of the tendency to divide knowledge into watertight compartments which allow little or no overlap?

5. Discuss how the school curriculum in your area might be more effectively 'Africanized'.

TEACHING METHODS

1. Choose one teaching method that you have studied and plan how you would begin to use it in practice. Make a note of the preparations, or adaptations you might find necessary so as to make ready the following for the new teaching method:

The teacher.	The scheme of lessons.
The pupils.	The time table.
The classroom.	Teaching aids.

2. Discuss the contrast outlined in Section A of this chapter between experience and accumulation of facts and make practical suggestions as to how more use can be made of experience in education.

3. Consider the following statements and the criticisms they imply. How far are they justified and how can corrections be made?

(a) 'Traditionally, teachers are more concerned with the methods of education than with the content.'

(b) 'Education has been plagued by changing fashions of method mainly because teachers have not known where they were going and have replaced the means for the end.'

(c) 'Teachers are not born; they are made.'

(d) 'No syllabus or scheme of work will make good people of our boys and girls any more than a good constitution will make a country truly great. It all depends on *how* the plans are implemented, *how* the syllabuses are used and *how* theory is put into practice.'

(e) 'The technical excellence of teachers today is accompanied too often by an absence of real purpose. They are like members of an orchestra who must occupy themselves with tuning up because someone has lost the music for the performance.'

For Further Reading

W. R. NIBLETT. *Essential Education.* University of London Press.
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